

OS2

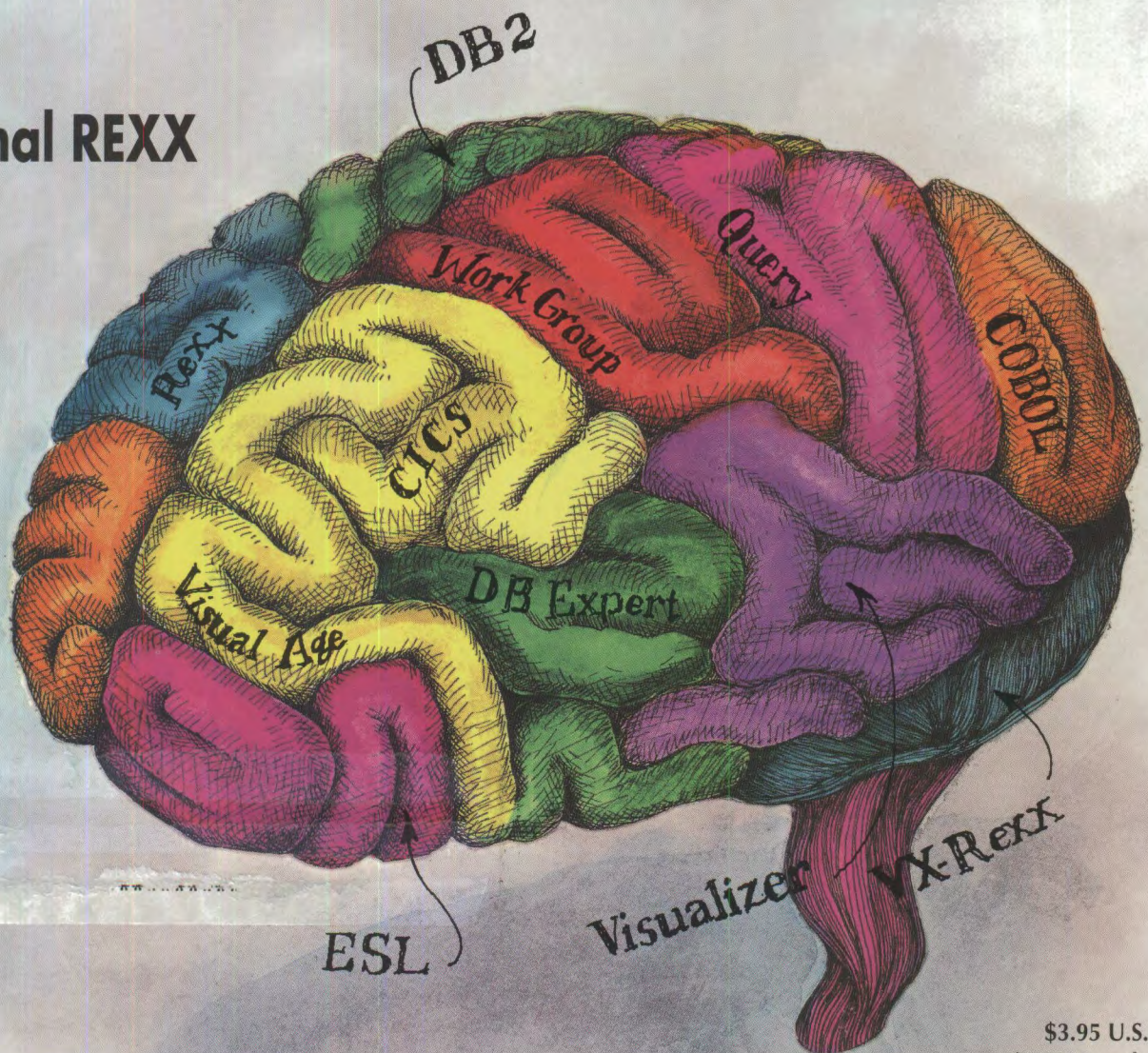
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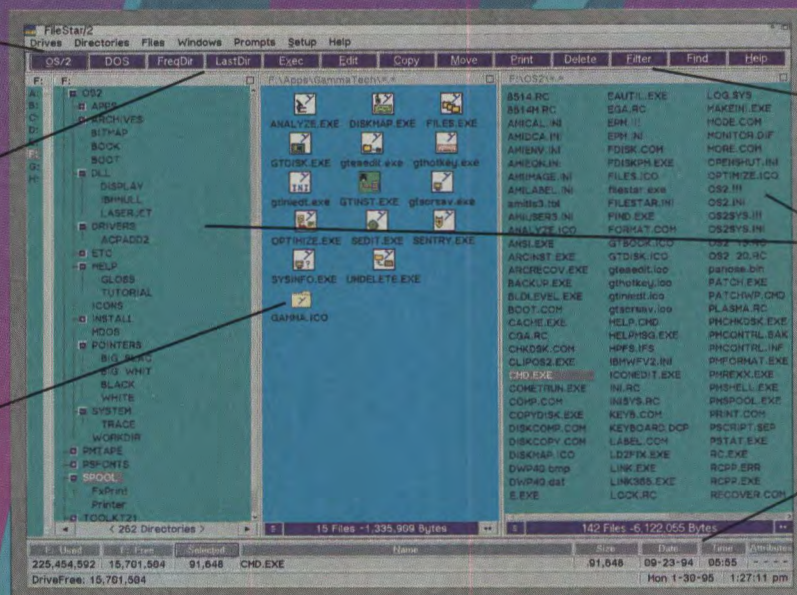
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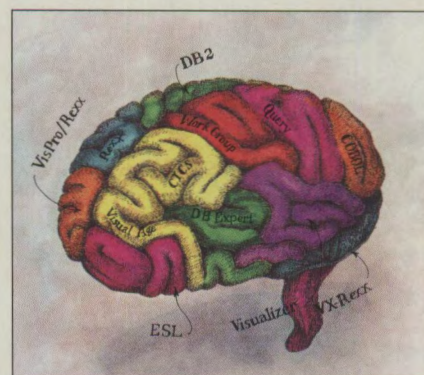
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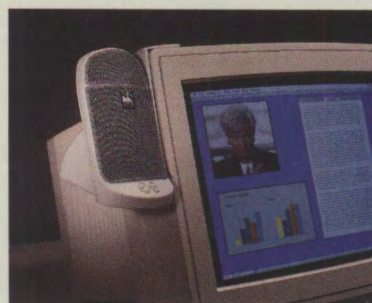
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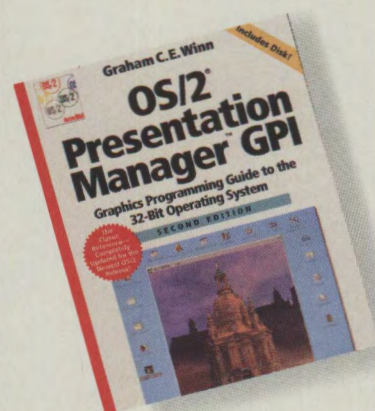
Jerry Pournelle reflects on the early days of Microsoft to argue against the proposed de-installation of Windows.



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Preview: Flag Sales

1994 International Flag Sales
1-Feb-1995

Country	Sales	% of Total
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2nd Quarter	\$472.78	10.86%
3rd Quarter	\$501.26	11.52%
4th Quarter	\$515.67	11.85%
Total for Canada:	\$1,909.18	43.87%
United Kingdom		
1st Quarter	\$543.75	12.50%
2nd Quarter	\$611.39	14.05%
3rd Quarter	\$597.99	13.74%
4th Quarter	\$689.12	15.84%
Total for United Kingdom:	\$2,442.25	56.13%
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Page 1

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Caught Between Microsoft and IBM

BY EDWIN BLACK

My last editorial, *Dismantle PSP*, struck a nerve in Austin. We suggested, for the good of Warp, IBM, and the computing community that relies upon both that PSP should be folded into SWS. In February, PSP underwent its latest reorganization, this time joining IBM's Software Marketing group, which oversees all networking, software solutions and OS marketing. We have advised IBM to finish the job—something IBMers mutter about all the time—dissolve PSP altogether, and place Warp under the baton of others at Big Blue. In this process, the best minds in Austin would be preserved for Warp, and the arrogant incompetents would be discarded.

Now the people who control Warp in Austin are organizing their latest effort to retaliate against this magazine by instructing employees not to talk to us, withholding advertising and even forcing one staffer to rescind a commitment to appear on the Ethics in Media panel I am chairing at OS/2 World in Boston next month, and by doing other things in the business realm against us almost too unbelievable to mention.

IBM's bullying tactics are getting old. They did it when we released the news about Ferengi, they did it when we released the news about a bizarre policy limiting its own advertising to two units per publication and they did it when we released our Bloodhound cover story—a story that ultimately changed for the better the way many IBMers do their jobs. These tactics never accomplish anything other than to make IBM's customers wonder what kind of partner they have when they read the details. None of it will alter *OS/2 Professional's* mandate to tell vapor from reality, whether it's about Microsoft, IBM or anyone in-between.

Ironically, IBM's chief complaint against this magazine is not that we tell falsehoods. That would be too easy to shoot down. They object because we tell too much of the truth. Our access to sources inside IBM is a little too good, better than almost any other publication. Witness our cover stories on Bloodhound, the

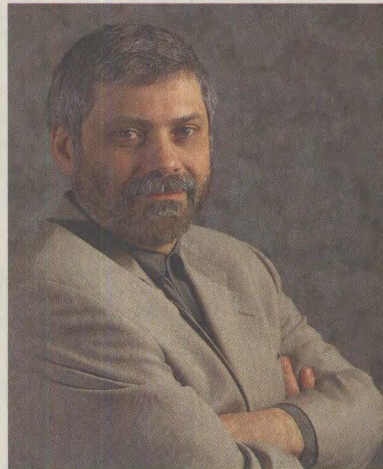
Warp launch and this issue's scoop on DB2 version 2.

When we praise what IBM does well, they ask for reprints. When we write something they don't like, they threaten us. The truth hurts and IBM has repeatedly petitioned us to tell less of it. And we do. If for no other reason than we simply don't have the room or the inclination to produce a magazine devoted to IBM misdeeds and mistakes. But certainly, when those misdeeds and mistakes affect Warp and IBM's ability to make it succeed, we will tell what we know.

In the past, IBM has harassed me with telephone calls to my house at 1 AM to complain about articles, instructed its Canadian ad agency to pull CSet advertising and explicitly state it was in retaliation for articles, faxed our confidential business plans to competing magazine publishers and threatened to pull our license to use "OS/2" in our name unless we ran a photograph of a PSP marketing executive—and each time we have steadfastly refused to cave in.

Just before deadline we asked IBM about its latest retaliation plans. PSP spokeswoman Jo Ann Sager staunchly denied any such plans. But she did concede that PSP was upset with last month's editorial. Sager also confirmed that IBM suddenly cancelled its commitment for the OS/2 World Ethics in Media panel, explaining that PSP felt there was the "distinct possibility" that their representative would be "roasted" by the following panelists: *OS/2 Magazine* Editor Alan Zeichick, *OS/2 Magazine* columnist Will Zachmann, *Atlantic Monthly* columnist James Fallows, and myself and Brad Klierer of *OS/2 Professional*. When asked, Sager responded as such to each name. (Just to reassure Austin that no one had any intention of doing that, we reminded Sager that the last time we had one of these, then-PSP Communications Director Pete Hayes loved the panel and wanted to come back.)

The truth hurts. It hurts PSP. And it will probably hurt *OS/2 Professional*. But it doesn't hurt nearly as bad as not facing up to it. ♦

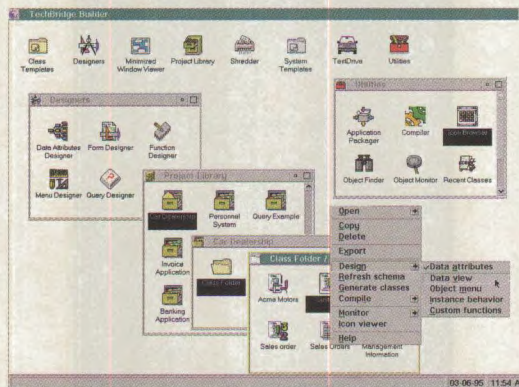




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Comments, criticisms, and observations

De-installation of Windows

OS/2 Professional is one of the few publications that I make time to read every month and I was very impressed with your April Special Report, *The De-installation of Windows*. However, there are a couple of areas where I think Edwin Black's article went too far.

I don't believe we need to de-install Windows from every 386 or higher computer. Most users will avoid the hassle and stick with whatever is installed on their computers.

People will change when they feel the need to change, not when a program asks them if they want to. Such a program would be a waste of money and energy that could be better spent splitting Microsoft into OS and Application companies. This step alone would create a much more level playing field for competitors.

You also crossed the line when you said, "Microsoft would be barred from the computer hardware field." I see no reason to keep them out of this market (as a separate company) as long as they don't use their OS clout to push closed, proprietary standards.

People might say that all of these sentiments could also apply to IBM. Only in a sense though. IBM products *do* compete in all of these areas, but to date they either don't have the single user version, or have decided not to use this to unfair advantage. If they do begin to engage in the same monopolistic practices as Microsoft has over the past years, by all means, they should be broken up too.

Michael O. Schoneman
via the Internet

As a dabbler in OS/2 and UNIX and a fulltime user of DOS and Windows, I was particularly attracted to your article on Microsoft's lawsuit.

Vaporware is a major problem in the computer industry and media today. I am ashamed to admit that I have fallen victim to it more than once, but did not

realize at the time that it was a marketing ploy. It is an industry-wide problem that desperately needs to be addressed.

My initial reaction to the de-installation of Windows was varied. I currently run DOS, Windows for Workgroups, OS/2 Warp and Linux. I am a big fan of all these operating systems and use each for a specific task. The concept of the multi-OS CD-ROM is a great idea because it gives users a chance to see each operating system and to evaluate the strength and weaknesses of each in accordance to their needs. But, I also fear that the computer industry may become just as nasty a market as the long-distance telephone service. I am sick to death of AT&T, MCI and Sprint ads and I do *not* want to endure constant IBM, Microsoft and Apple ads!

The true obstacle to overcome in Microsoft's market dominance will be overcoming the public's opinion. Many users are comfortable with the established paradigms and probably will not be persuaded to move to a different operating system even if Microsoft is split into three companies.

The winner of this case will be the computer user who, like the phone customer of the AT&T era, will be released from a stranglehold and free to exercise true freedom in their computing environment.

Brandon M. Wise
via the Internet

I enjoyed the article on the de-installation of Windows. It clarified many of the questions I've been asked about "what *really* is going on." One option that was overlooked, however, was the ability to have multiple operating systems resident on the hard drive at the same time. On my home system, I have DOS, Warp and NT all bootable from my C: drive so that I can utilize the benefits of each OS as I need them.

Scott Carpenter
via the Internet

Accurate analysis

I am a brand new OS/2 Warp user. I found a copy of your February 1995 issue and read Edwin Black's article on the lousy Warp advertising campaign [*What Went Wrong With the Warp Campaign*] and I must say he hit the nail on the head.

I was skirting around OS/2's power until I read that article. No one had ever explained why OS/2 is a better DOS than DOS. As a real DOS jockey, I fired up my favorite antivirus (VirusAlert by LOOK software), while it did an entire hard disk scan. I then proceeded to open another OS/2 window and install a utility I downloaded from a BBS.

Even a diehard DOS jockey that is not into GUIs would be twice as productive as with plain vanilla DOS. And if I decide I do not like the PM interface, I can boot to a full screen OS/2 window and go to my heart's content. So, OS/2 stays.

Elliot Ross
via CompuServe

Open a window

"*OS/2 Professional* does not own a copy of any Windows software, and declines to purchase any" (Bytes & Pieces, April 1995). You are doing your readers a disservice. We need you to test problems with Windows software and Warp.

I need to know that the fast load Windows is incompatible with my AWE32 sound card before I buy the card. Reviews of the AWE32 without testing Windows programs are inadequate.

My Corel Draw for OS/2 has several Windows programs included. I guess you can't review them because you don't use Windows programs. Reviews should show how they work together.

Please cover the needs of OS/2 users who also have to run Windows applications.

Howard Brazee
via the Internet

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Rather Fly Than Walk?

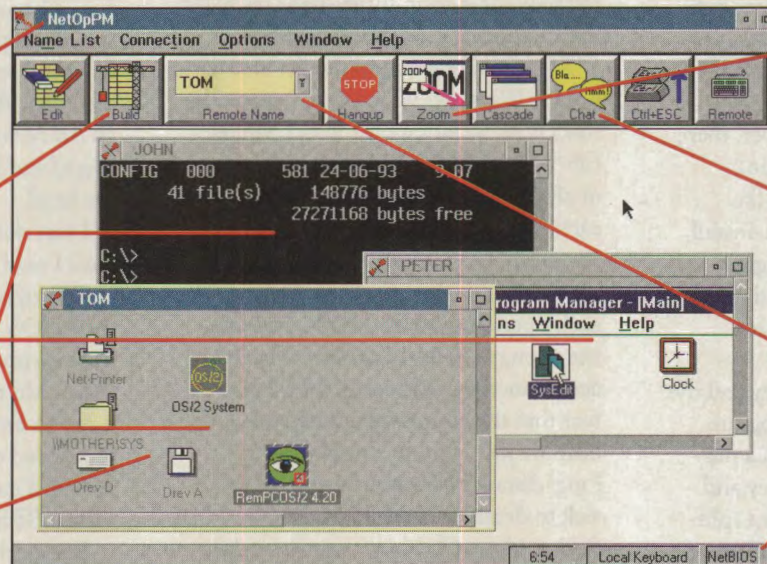
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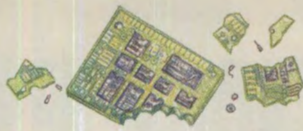


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BYTES & PIECES

News and trivialities, important and obscure

Appealing numbers

Readers following Judge Stanley Sporkin's rejection of the Microsoft/Department of Justice consent decree may have missed some interesting news and numbers edged out of media coverage by the Oklahoma City bombing. On April 24, a three-judge panel heard arguments addressing Microsoft and the DOJ's bilateral appeal of Sporkin's rejection of the consent decree.

The judge had not reached a decision at press time, though the crowd that packed the courtroom did hear some enlightening numbers concerning Microsoft's processor agreements with OEMs. Jeffrey Jacobvitz, representing I.D.E. Corporation, stated that I.D.E.'s agreement with Microsoft requires it to pay \$20,000 per quarter to Microsoft for operating system licences used or not, but I.D.E. cannot possibly sell enough to fulfill its obligations. Therefore, Jacobvitz confessed that I.D.E. can not afford to load non-Microsoft operating systems because doing so would prevent the company from recouping the \$2 million it has already spent for Windows licences. Jacobvitz speculated that throughout the industry, probably an additional \$25 million of unrecoverable payments prevents other smaller companies from preloading non-Microsoft OSs. The judges are expected to rule on the appeal by early summer.

Media Ethics at OS/2 World

OS/2 World will host a panel discussion on ethics in the computer media on July 20 at 3:15. The panel will be chaired by *OS/2 Professional* Editor-in-Chief Edwin Black, who chaired a similar and spirited panel discussion at an OS/2 gathering in Palm Springs two years ago.

Panelists at OS/2 World will include:

OS/2 Magazine Editor Alan Zeichok and columnist Will Zachmann, as well as *OS/2 Professional* Editor Bradley Kliwer. Joining the group will be *Atlantic Monthly* computer columnist James Fallows.

The panel will tackle a host of thorny issues: Can industry consultants be objective when writing reviews? Should journalists sign NDAs? How does advertising affect publication independence? How aggressive should trade reporters be? What about the revolving door in computer journalism? How do companies such as IBM work to stifle or promote media independence? The answers to these and other questions will be hotly contested as the panelists differ and bicker over who's right and who's righteous in computer media ethics.

For information on OS/2 World, call (415) 905-2354.



R EXX reigns

During last month's Sixth International REXX Language Symposium at the Stanford Linera Accelerator Center, OS/2 REXX took center stage. Due out later this fall IBM's Object REXX was the subject of nine of twenty presentations during the symposium. What was perhaps the most exciting demo focused entirely on this forthcoming product.

Object REXX's flexibility extends backward compatibility to all standard SAA REXX code, ensuring that nothing in older REXX programs will break. Whereas OOP has been around for some time, many maintain that no language prior to Object REXX has been as simple to learn and use, yet still able to retain the depth and power of a true OOP language.

Because the new syntax adds to SAA REXX without replacing anything, REXX programmers can immediately begin to define objects in terms of classes based on their attributes. There is no

need to relearn new REXX procedures or to alter old code. Object REXX automatically takes care of messages between objects, allowing developers to concentrate on intuitive object programming. One ramification is the fact that client/server applications may be written by "non-programmers" with very little knowledge of communications software.

Adding to the momentum, IBM announced that it will give away its source code for Object REXX (in Linux C code), allowing it to be easily ported to other platforms. Gearing up for the release, REXX publishers have been working overtime, releasing comprehensive new titles such as *The REXX Cookbook* by Merrill Callaway and the *REXX Reference Summary Handbook*, by Dick Goran.

If you're interested in what's hot in the world of REXX, send your queries to the REXX Language Association at chuckles@netcom.com.

Warped Wally Casey comments

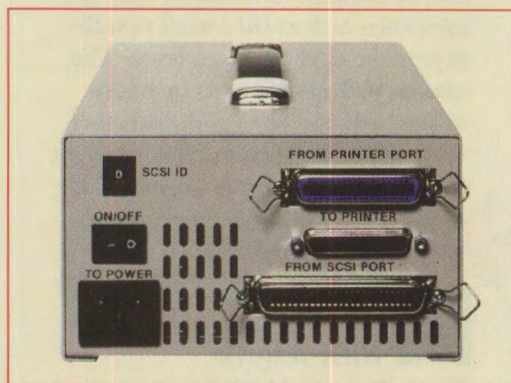
OS/2 Professional's May issue interview with Wally Casey asked the Warp marketing director what the next addition to the Warp family would be. Casey answered, "Which one pops out of testing first? I can't answer." This ambiguous reply belied what PSP was really doing, which was preparing a series of niched BonusPak upgrades, including a so-called BusinessPak, ConsumerPak, ExtendPak and ConnectPak. *OS/2 Professional* has been interviewing IBM officials since 1992 and this is the first time a PSP official has not been completely forthcoming in an interview. All *OS/2 Professional* interview transcripts are edited, and interviewees see galley's just before press time in case any information has become outdated or updated. PSP declined to reply to questions about Casey's omissions. ♦



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Retailing Nightmares

BY BRADLEY D. KLIEWER

Does Warp's packaging promote confusion? The official IBM line says, "No." Vendors understand the various packaging schemes—blue if you don't have a Windows machine, red if you do. Warp Connect if you have a network adapter, the standard package if you do not. An upgrade package if you have 2.1 installed, a regular version if you do not. The scheme is really quite "simple."

But this rationale makes some basic assumptions that break down very quickly in the retail channel. The first is that the reps IBM deals with can adequately pass those simple instructions down to the sales force—perhaps through a few layers of bureaucracy. If you ever played telephone in grade school you'll immediately spot the potential for confusion. The second assumption might be that the retail environment fosters calm, efficient customer/salesperson interaction. Clearly, IBM folks need to get themselves to a gargantuan computer retail outlet to see how the whole process really works.

If an uncorrupted message reaches the sales force, the salesperson still must be competent enough to understand the customer's questions and provide corresponding answers. Even if each salesperson possessed this kind of computer savvy (and the lousy wages and benefits offered virtually assures they don't), the customer still must be able to find said salesperson. Good luck! A recent experience I had at a local Computer City illustrates the problems of transferring corporate know-how to real people.

I was looking for an internal SCSI connector with more than two drive connectors (to configure the RAID I reviewed in the

April issue). While browsing the shelves, a woman next to me asked a salesman about printer cables. She kept saying she had a serial printer from her Mac that she wanted to use with a PC laptop. She was looking for a new 9-pin to 25-pin cable because the one she had already purchased was not working.

The salesman kept handing her a parallel printer cable despite her continued objections that the connectors didn't look right. He repeatedly told her she needed a printer (parallel) cable, not the modem (serial) cable she was looking at. Not normally an assertive soul, I felt compelled to step in. I pulled

a modem cable off the rack, picked up a null modem adapter and gave a quick lesson on serial communications, explaining that most serial printers have the "transmit" and "receive" pins reversed relative to a modem. I told her to try the cable with the null modem attached, but to keep in mind that plenty of other configuration issues might make a reliable connection difficult: XON/XOFF protocol, setting the data bits and baud rate, and so forth. Fortunately, her nephew had already matched the MODE parameters to her printer, so she was pretty confident that

the only problem was in the cabling.

She went on to tell me that she hated shopping at the superstores because it's so difficult to find someone to help, and once you do they don't seem knowledgeable enough to help.

Of course, the superstores have a better-informed sales staff than that of my latest Warp sighting: Musicland, where the saleswoman had no clue how to point me to CDs by Gorecki and Savage Aural Hotbed.

I didn't even bother to ask about CD-ROMs. ♦



NEWER SMART

DB2 for OS/2

Major changes in IBM's flagship database signal a strategic shift in database platforms.

by Bradley D. Klierer

Some people age gracefully, meeting the demands of life and learning along the way. Others become worn down by the stress of daily living. Likewise, computer technology, which becomes stagnant without new breakthroughs, can follow a course of continued advancement and learning or the denouement of tired old thinking. One key technology long synonymous with relational database management, DB2, fortunately shows signs of continuing vitality. DB2 was an outgrowth of IBM research conducted by Dr. E.F. Codd. In 1969, his application of mathematical theory to data modeling would begin a new era of data management. In typical bureaucratic fashion, IBM would take until the early 1980s to ship DB2—its first commercial product based on relational technology. While slow to arrive, DB2's robust technology was based on years of research and testing.

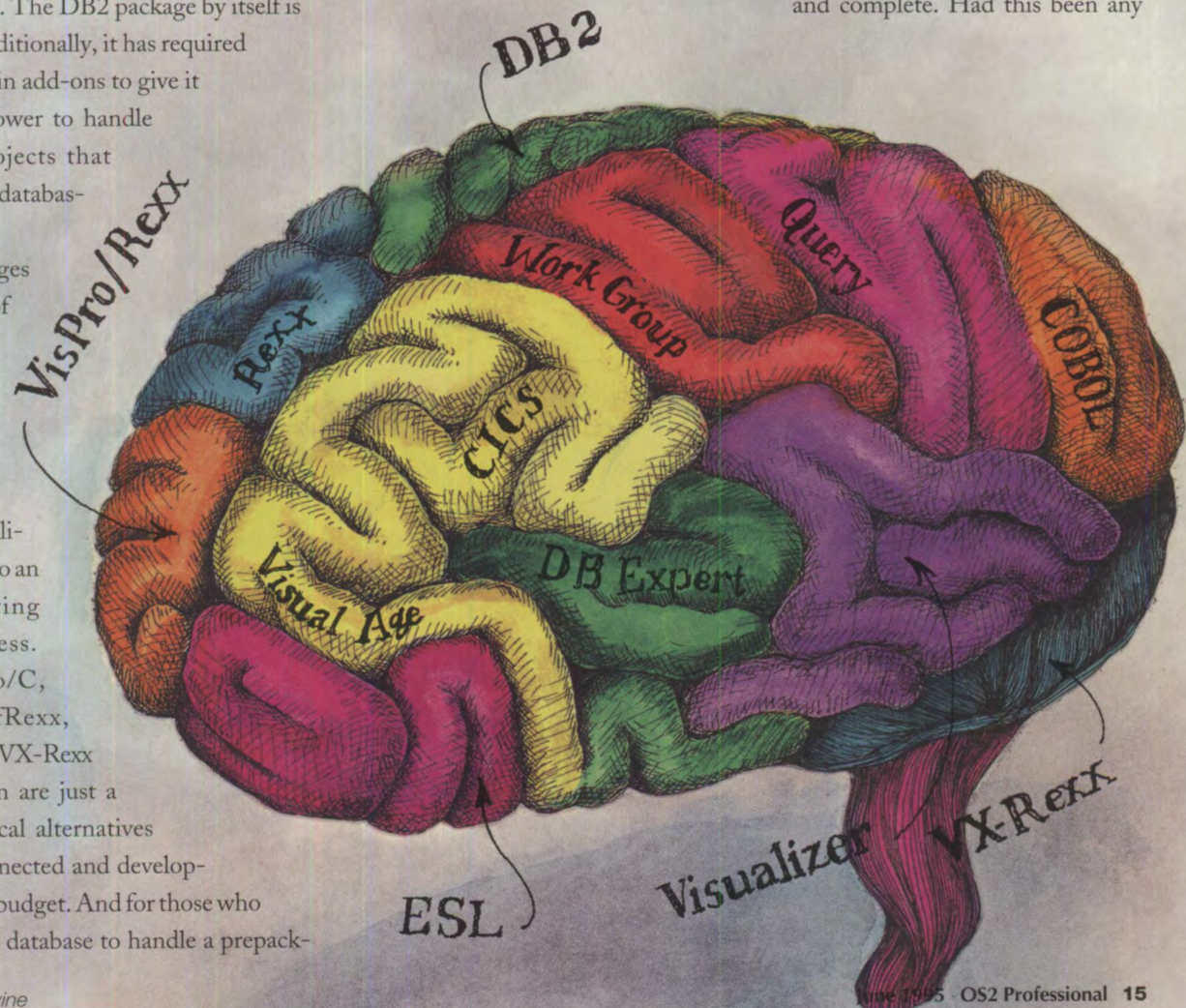
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The latest incarnation, DB2 for OS/2 Version 2, in many ways exemplifies the best and worst of IBM: a solid product nevertheless hampered by slipping release dates and poor packaging. The latest revision, version 2.1, was announced in 1994 but will not ship until July 28. And while DB2 Version 2 provides an industrial-strength database that lends new productivity to old IS departmental methodologies, those old methodologies require, and have required, a significant investment in outside tools and expert skills. The DB2 package by itself is nearly worthless. Traditionally, it has required a few grand invested in add-ons to give it the flexibility and power to handle data processing projects that bring standalone PC databases to their knees.

Fortunately, changes both in and outside of IBM are revolutionizing the database market. Innovative companies are lowering the price point of those necessary utilities that bring sanity to an otherwise frustrating development process. DBExpert, VisPro/C, VisPro/Rexx, GpfRexx, Microsoft Access and VX-Rexx Client/Server edition are just a few of the economical alternatives that can get you connected and developing applications on a budget. And for those who simply need a robust database to handle a prepack-

aged application, even IBM has jumped into the market with its WorkGroup product line. Better yet, IBM has finally acknowledged the importance of the growing SOHO segment with its yet-to-be-released enduser database, code-named Ultralite.

To better understand the forthcoming changes, *OS/2 Professional* was given an exclusive preview of DB2 for OS/2 Version 2.1 beta 4 with post-beta fixes. Our impressions have been quite favorable. In fact, the beta has proven surprisingly stable and complete. Had this been any



other PC-oriented product, we would have expected more problems in the first *shipping* version. For example, the DB2 Version 2 beta, at three months before its release date, seems far more mature than a Warp Connect beta dated one month before its release.

Perhaps the most unfortunate aspect of DB2 Version 2 is that it's not an enduser's database: this is no Paradox, Access or dBASE replacement. DB2 is merely the brain that drives the body of database applications that connect to it. Yet if our experience proves typical, growing businesses will flock to a database manager with a robust growth path. We have found that even moderate workloads can tax the limitations of the current enduser-oriented databases.

Another problem affecting the enduser database market is a disturbing PC industry trend that treats glitz and creeping featuritis as more important than reliability, integrity and backwards

compatibility. An example familiar to many on *OS/2 Professional's* staff is Borland's Paradox. As Paradox for DOS grew ever more complicated with more features, functions and field types, the operations became ever less reliable. In turn, application coding moved from adding new functions to working around problems in the database. In one application, we discovered that adding the contents from one table to another was so unreliable that we manually coded a record-by-record transfer of data. When Borland designed Paradox for Windows without support for DOS-designed forms reports, and program code, it dashed hopes of migrating key applications to a newer platform. Now, with all development efforts focused on the Windows platform, the chances for fixes to the DOS product seem slim indeed.

Even without reliability problems, user-oriented databases can grow cumbersome because of the way they access files: treating the network as a large hard disk. In query operations, massive

First Cousin of DB2 Version 2

For those who came to the world of client/server computing via the IBM mainframe, CICS is a familiar acronym. Although its demise has been predicted several times, CICS has been and remains the backbone of on-line business data processing. CICS has been in widespread corporate use since the early seventies, and CICS OS/2 is one of the latest offspring of the venerable transaction processing system. Like DB2 Version 2, CICS/OS2 is not 100 percent compatible with its mainframe counterpart. However, the list of incompatibilities is short and will probably not affect your mainstream applications. In general, CICS/OS2 offers a few fundamental advantages for any corporate data processing department.

For example, when used in conjunction with DB2 Version 2 and the COBOL/2 compiler, the previously hard-wired 3270 programmer has the equivalent of a mainframe CICS/DB2 development environment and all of the convenience of a laptop computer at its disposal. Throw in a mainframe-like PC text editor such as SPF/PC or Kedit and you've got the shortest possible learning curve toward distributed application development and execution. This combination of software and hardware can dramatically increase the productivity of those responsible for the construction and maintenance of mainframe code.

Not only does CICS/OS2 support SQL data access, it also provides data access to existing Virtual Storage Access Method (VSAM) files. This development approach will save the mainframe millions of instructions per second associated with development and maintenance costs, but the big pay back is that it can double the productivity of your average \$50,000 per year

programmer/analyst.

CICS/OS2 provides a viable production platform for the communications and data access component of client/server applications. It can do this several ways, but my favorite features are function shipping, transaction routing, distributed program link and the external call interface.

Function Shipping predates CICS/OS2 in that CICS/MVS regions have been using this feature to send data requests across CICS regions for years. You can function ship not only from the PC to the Host, but also from the Host to the PC.

Function Shipping provides interesting architectural possibilities when used in conjunction with CICS queues and triggers. It gives the application programmer the ability to access remote data with virtually no special application coding considerations. Function shipping is a quick, clean and easy way to get host-based data or messages to and from the workstation.

Transaction routing, like function shipping, has been around for quite sometime. One of the nice things about transaction routing is that it is entirely possible using the mundane 'EXEC CICS START' command to start a transaction from the host to any CICS/OS2 node, which is of course very useful for mainframe-initiated file transfers or messaging. This facility also can be used in conjunction with ISDN network software to access, route and display host-based customer data at a PC workstation before a customer support rep answers the call.

The distributed program link is a powerful facility in that it gives the user the ability to execute a subroutine based on network node locations as

quantities of data may traverse the network, leading to saturation and poor performance. At the file level, each system is responsible for its own locking and other low-level management tasks. While workable on a small scale, such schemes become unmanageable as the user base grows. These user-oriented databases were designed to start small and grow, but they quickly hit resource and bandwidth allocations problems in the process.

Systems such as DB2 Version 2 suffer the opposite problem. They are designed to move a large system down to a smaller platform. Thus, the driving factors in development are reliability and efficient processing on one or more central servers. DB2 Version 2 meets these criteria: the database is robust and network operations are efficient (only the

**"With 75
workstations
going after the
DB2/2 server,
it simply does
not break."**

requested data transverses the network). As Mark Christmas, database administrator at Royal Bank of Canada puts it, "We've run the DB2/2 database server for the last two and one-half years. With 75 workstations going after this thing it simply doesn't break." You can forget the one-button install, however. Configuring and connecting to a DB2 Version 2 server can make LAN Server configuration look like child's play. Even then, you won't have the tools you need to make much use of the server.

Fortunately, IBM has conceded this point. Gone is the quirky Query Manager from DB/2 Version 1.2. Instead, IBM will bundle several utilities and extenders with the package. Although the exact configuration had not been finalized at press time, the lead-

defined by the SYSID parameter in the CICS/OS2 PPT. It is ideal for the execution of statically-bound SQL subroutines sometimes known as remote stored procedures. Remote stored procedures are typically a more efficient mechanism for the retrieval and maintenance of large volumes of DB2 data as compared to the DDCS/2 communications facility.

Aside from becoming more efficient with CICS/OS2, the system also gives the application programmer a great deal of flexibility in the development of client/server systems. By moving the SQL subroutine (or any data access subroutines for that matter) to a different platform and changing the PPT SYSID accordingly, you have taken the first easy steps into the brave new world of client/server computing. CICS/OS2 also allows for the dynamic redirection of execution. That is, instead of adjusting PPT entries, you can programmatically determine a SYSID and use it as a variable in the 'EXEC CICS LINK' statement. This is a good path to the dynamic rerouting required for application recovery.

External call interface is a feature that allows for non-CICS/OS2-controlled tasks to gain access to CICS/OS2 and, by extension, CICS/MVS-controlled resources. This function call is easily used in Presentation Manager programs. It can be executed synchronously or asynchronously. Moreover, this facility will support single or parallel communication sessions. The API contains a window handle and a message to post upon return from the function. This function can be used by both COBOL and C programs and is very easy to implement relative to other networking packages that offer similar functionality. When used in conjunction with the Distributed Program Link, Function Shipping or Transaction Routing, the systems analyst has an arsenal of networking and data access tool at his or her disposal for strategic client/server application development.

The final advantage of CICS/OS2 is that the learning curve is relatively mild. If you have a staff of 100 mainframe programmers and analysts in your corporate data processing department, you probably have close to 100 people who could easily pick up CICS/OS2 and be productive within a short time. This number should also compare well to the number of TCP/IP programmers in the shop.

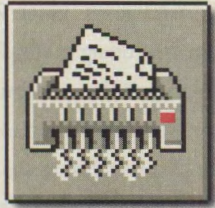
CICS/OS2 uses APPC or NetBios protocols in its underlying communications code, and supports both single and parallel APPC sessions. Based on my own experience, the amount of execution time overhead is not unbearable given the ease of use and flexibility. I know from experience that it is possible to build a client/server application using COBOL/2, Presentation Manager, CICS OS/2, CICS/MVS and DB2 and consistently get sub-second response time.

CICS/OS2 has been available since the late eighties. More recently IBM has announced support for the AS400, AIX, Windows and DOS version. Given the underlying technical inefficiencies of Windows and DOS, I cannot recommend the use of CICS/OS2 for mission-critical applications on those platforms (it's a response time issue relating to the single-threaded nature of DOS and, by extension, Windows 3.1).

One final note of caution: if you choose CICS/OS2 as part of your client/server strategy, you should negotiate on-going maintenance fees up front. Implementation on one or two workstations is one thing, but implementation on several hundred can lead to expensive upgrades.

Mark Ivanovich is the president of The Object Group, Inc., a Chicago-based consulting company specializing in the development of client/server applications that use OS/2 Presentation Manager, CICS, DB2 and DB2 Version 2.

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SPECIAL REPORT

ing contenders include a "try-and-buy" package of Visualizer modules, a line of products that helps users build queries, reports and simple programs, and Ultimedia Query, a tool that finds images based on image descriptions. Better yet, IBM appears to be ahead of schedule on its Ultralite development. Ultralite combines the friendly interface of an enduser database with the robustness of a single-user version of DB2. From the user's point of view, DB2 never enters the picture. Rather, a set of GUI tools replaces the arcane SQL language that drives DB2. It's as if the user had DBExpert or Microsoft Access without ever configuring the connection. It remains to be seen how transparently Ultralite will configure in a client/server configuration. Indeed, this particular piece may explain the late delivery date for DB2 Version 2. If all goes well, officials may decide to bundle Ultralite as a free add-on until the end of the year. Of course, if IBM cannot deliver Ultralite in time (or if users prefer an already familiar front end) the prize for the company that closes the gap between the large enterprise and the enduser database will remain unclaimed.

We had only one minor problem connecting Microsoft Access to the DB2 Version 2.1 beta — a bug in the Windows GUI configurator that has already been fixed. We experienced no problems connecting via the native OS/2 knock-off, DBExpert. DBExpert, reviewed in this issue's Dot Exe section (page 25), provides an interface similar to Microsoft Access in a native OS/2 program. In using it with DB2 Version 2, we were sometimes frustrated by its obvious under-utilization of multithreading. However, despite IBM's concern that DBExpert was untested with the DB2 Version 2 beta, we found DBExpert the best tool among the many we tested for prototyping and interactive access.

For power users both small and large who prefer to code their own applications in whatever language they wish, DB2 Version 2 provides a development platform that enduser databases can scarcely touch. With DB2 Version 2 you can write your user interface code in REXX, C, COBOL, or whatever, and include APIs (or even in-line SQL statements) that access the database on the server.

With DB2, the large tools predominate. The high-end database shops get their CICS migrating applications from MVS to OS/2 and AIX. In this cross-platform world of multi-lingual programmers, tools aimed at COBOL programmers and team production find a receptive audience. Of course, DB2 Version 2 itself provides the necessary libraries to let programmers hand-code applications in C and COBOL. But most shops turn to high-end

SPECIAL REPORT

OS/2 tools such as Application Manager, ESL and VisualAge. DB2 Version 2's clients span the workstation gamut, as beta testers at Union Gas in Ontario have discovered. In addition to the OS/2 tools such as Techbridge Builder, a slick GUI-based designer with a COBOL-derived language, Windows tools such as PowerBuilder and even VisualBasic find a prominent role.

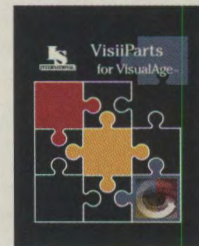
Small companies may never run into the limitations of the older database technologies. But for larger companies such as Union Gas, Royal Bank and UPS, optimized distributed features and spanning become important. DB2 Version 2.1 was designed to overcome operating system limitations such as OS/2's 2GB file size limit by partitioning data across table-spaces. Other improvements such as user-defined functions, user-defined data types and LOB (large object) support will be welcomed by developers both large and small.

Most importantly, DB2 Version 2.1 continues to support applications written to the older 1.2 specs. Although the DB2 Version 2 developers seemed slightly ill at ease as I put untested third-party applications through their paces while connected to the 2.1 beta, I found remarkably few problems. Other than the aforementioned Windows GUI Configurator bug, the only other problems came when compiling programs with Hockware's VisPro C. IBM changed the API library from SQL_DYB.LIB to DB2API.LIB, thus requiring a minor change to the .MAK file. Another problem was due entirely to an obsolete API used by VisPro C. Already in the now aging DB/2 1.2 documentation, IBM recommended changing calls from an API that makes the database connection to the explicitly issued SQL CONNECT command. With 2.1, the API no longer exists. Again, a simple change to the VisPro C-generated source code fixed the problem.

In DB2 for OS/2, IBM has built a powerful and reliable brain with a neural system that reaches across every application and client on your network. The DB2 features that applications can exploit for advanced functionality and object-oriented technology are ready to go, but it remains the challenge of independent vendors (and other divisions within IBM) to provide the muscle-power to make it all run smoothly. Christmas summed it up best: "When we started talking with IBM about Version 2.1 a year and a half ago, I was skeptical. I didn't think they could do it — the changes were just too huge. They should be commended for what they've accomplished so far—they're going to have a real winner." ♦



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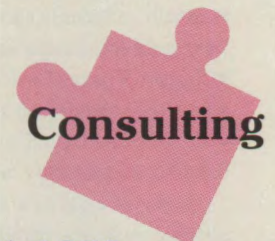
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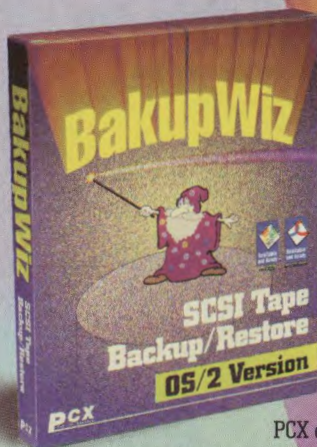


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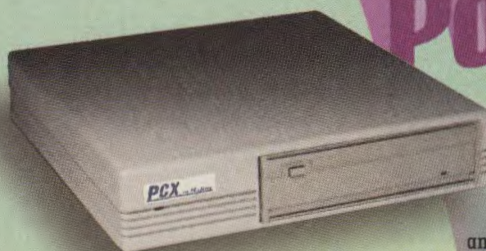
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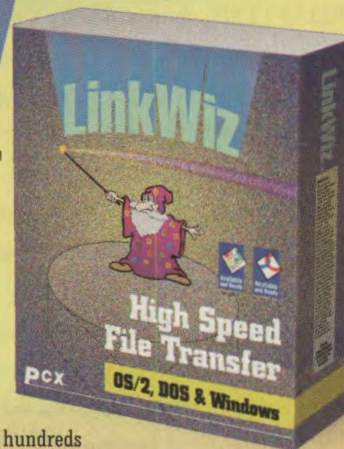
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IBM Tools Up OS/2 Application Strategy

BY MICHAEL S. KOGAN

IBM's mission to stimulate native OS/2 application development has been a challenging one. Despite Lou Gerstner and his executives' exhortations, ISVs have been reluctant to bite for several reasons.

Primarily, ISVs are focused on Win32 development for Windows 95—basically refusing to commit to anything that will detract from their ability to compete in the Windows market. Secondly, they are not convinced that OS/2 is here to stay nor that it can bring them profits.

Finally, although the development tools for OS/2 have improved, and IBM has bundled One Up's SMART tool (for converting Windows code to OS/2 code) with its Developer's Connection CD, this has not been enough. While SMART assists ISVs in rapidly creating a native OS/2 application, they do not relish the prospect of trying to preserve feature parity across multiple codebases that use different development tools.

Now it appears IBM has recognized that the best way to get OS/2 applications developed is to offer state-of-the-art development tools that compete head to head with Microsoft's tools and Microsoft Foundation Classes (MFC) on the Windows platforms. By providing developers with tools that do everything Microsoft's do for Windows and more while providing single codebase cross-platform support for OS/2 and AIX, IBM creates a situation for ISVs where what's good for Windows will be even better for OS/2 and AIX.

At the core of the strategy are versions of CSet++, Visual Age/Smalltalk, and Bart (IBM's Visual Basic competitor) for the Windows, OS/2 and AIX platforms. If you've seen the CSet++ V3 beta, then you've seen a glimpse of the future. The Visual Builder from Visual Age has been incorporated into the CSet++ development environment, and the ICLUI class library has been revamped and renamed OpenClass.

Using the object-oriented tools and OpenClass interfaces, developers can code an operating system-independent program that takes full advantage of advanced features such as multitasking, drag and drop and compound documents. IBM is expected to deliver a version of OpenClass optimized for C++ and a language-independent version for other languages via SOM, making it accessible by any language on any platform.

The strategy hinges on several linchpins—actually delivering the tools, making sure OpenClass effectively deals with OLE2/OpenDoc differences, competing in the Windows development tools arena and figuring out how to get developers onto the OpenClass platform.

Getting There From Here

IBM's cross-platform tools strategy is more attractive than yesterday's SMART approach because it does not strand developers in that nether-land of using multiple code bases to reach multiple platforms. However, IBM is still faced with an uphill battle because ISVs do not

want to jeopardize their Windows plans or actually commit their own resources and money to OS/2 development.

Since late April, it has been rumored that IBM has been trying to incorporate a subset of the Win32 APIs into the OS/2 API, making it easier for developers to create OS/2 applications from a single codebase. We're not talking about binary compatibility for Win32 applications, but about providing support for the most frequently used Win32 APIs that have analogous OS/2 functions.

Remember Micrografix Mirrors, the porting tool that allowed a 16-bit Windows program to be recompiled for OS/2 by mapping the Win16 functions to OS/2 functions? Mirrors made Win16 the cross-platform API and actually inhibited the development of native OS/2 applications that exploit the power of OS/2.



KOGAN'S KORNER

From what I understand, IBM's Win32-in-Warp strategy is Mirrors all over again, but worse. IBM does not plan to support all Win32 APIs, just the most frequently used functions. Furthermore, there is no support for Win32 functions that have no OS/2 counterparts, such as memory-mapped files (all Win32 memory sharing is through mapped files) and bezier curves.

Nor does IBM's strategy address the OLE2/OpenDoc issues. It also tells developers to use Win32 and MFC for their cross-platform API. ISVs will see this as the path of least resistance, ignoring IBM's more strategic goal of moving to OpenClass. As a result, they will stay with Microsoft tools and interfaces.


Rather than work on this half baked Win32-in-Warp scheme, IBM should revisit today's strategy centered around One Up's SMART tool. First, IBM should use its OS/2 application development budget to fund ISV costs for a SMART port of their current products to OS/2. This will result in ISVs bringing both a Win95 and an OS/2 version of their products to market, both of which will have feature parity, and revenue generating capabili-

ty, all without impacting today's Windows plans.

Then IBM must continue to support the ISVs in the key step, moving to a single codebase using IBM's object-oriented tools, and the OpenClass interfaces. The obvious tool to help IBM move these ISVs to OpenClass, while making money in the Win95 and OS/2 markets, is a version of One Up's SMART tool that converts Win32 and MFC source code to OpenClass. As I understand it, this is already a done deal. So please, IBM, ditch Win32 in Warp.

I like this new tools strategy that IBM is embracing—what's good for Windows is good for OS/2. The strategy is attractive to both retail and corporate developers because of the rich function and its availability across all platforms, not just Microsoft platforms. Winning the hearts and souls of ISVs in the Windows markets by providing superior cross-platform tools will ultimately benefit OS/2 and will bring IBM kudos from the development community. ♦

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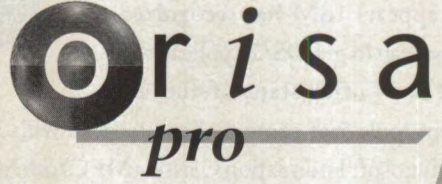


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INPUT

continued from page 9

We have gezillions of Windows programs in our Minneapolis lab and among our reviewers. What we meant was that we don't own any Windows software that is operational or in use.—Editor's Note.

Ouch, phone home

When your organization wrote off home use of OS/2, I shrugged and thought, well, to each his own. But your continued bias against home users is all I can take.

I am a home user of OS/2 and not a "computer professional." I have used OS/2 since version 2.0 on my home machine (first a Gateway 2000 and now a no-name clone) and have been able to install, after the fact, a Sony CD-ROM, a second hard drive, and a Mediavision Proaudio 16 Basic sound-card without any major problems except when I use DOS/Windows. I

can use advanced OSs and there are more of us out here than you would care to admit.

*Mark D. Weber
via CompuServe*

The home market and the personal market are really different and we should make that distinction. There are many professionals in the home market.—Editor's Note.

Color conundrum

I take exception to some of your comments in Bytes & Pieces [April 1995] regarding comparison tests between red Warp and blue Warp. My home office is not equipped to run benchmark tests, and I am not a techie or a programmer. I'm just an applications person who disliked the Windows environment, tried OS/2 and liked it. OS/2 has been my primary operating system since version 2.0.

Without attaching a stop watch to system tests, I know absolutely that blue Warp boots faster, creates the desktop faster, and loads all types of apps faster. In fact, versions 2.1 and 2.11 were faster than red Warp. An IBMer told me that Microsoft Windows was the culprit for the slowdown. He strongly suggested that WIN-OS/2 is a better Windows than Windows and assured me that I would be much happier with the performance of Warp Fullpack when it was released. He was correct; I am happier.

When I read something so contrary to my experiences, I wonder how the facts were compiled. Is my system unique? I don't think so. I have a two-and one-half-year-old 486 50MHz with 8MB and I have trouble digesting what I read.

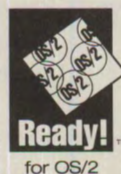
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Software for OS/2

DBExpert: Good Relations for OS/2

This RDBMS product has the potential to make a wonderful front end for a distributed DB/2 database.

BY RICK CHAPMAN

DBExpert, from Designer Software of Fruita, Colorado, is a general-purpose relational database management system (RDBMS). Designed from the ground up as an OS/2-specific application, DBExpert is a full 32-bit, object-oriented application that supports the Workplace Shell. No Windows version is planned. In its current incarnation, DBExpert gives OS/2 users a good reason to switch from the Windows-based RDBMSs that necessity has forced them to use. But be aware that this first release (which uses dBASE IV format internally) has no import or export capability of its own. For instance, to import a comma-delimited file for testing, I had to fire up an old version of Paradox 4.0 for DOS, import the file, then export it to a dBASE structure before using it with DBExpert.

When first running DBExpert, you may notice similarities between it and Microsoft's Access. This is no accident. Designer Software positions DBExpert as an enduser database, à la Lotus's Approach, Alpha Software's Alpha Four and Five, and Access. These databases allow users to create fairly complex database applications easily, without programming. Since DBExpert in its current incarnation lacks an underlying programming language—a deliberate design decision—it fits well into this category.

Designer Software plans to release an API to its DLL libraries that will allow developers to manipulate DBExpert tables and objects via C++ and REXX. The company also plans to release a run-time module for DBExpert in the summer of 1995 that will support compilation to an .EXE file. DBExpert uses the Q&E database engine, a middleware product, to access its files. The

user's choice of file structure determines the database, record and number of fields allowed per record restrictions. This version of DBExpert also connects to Oracle and DB2 files, but not Paradox—a shortcoming that needs to be rectified.

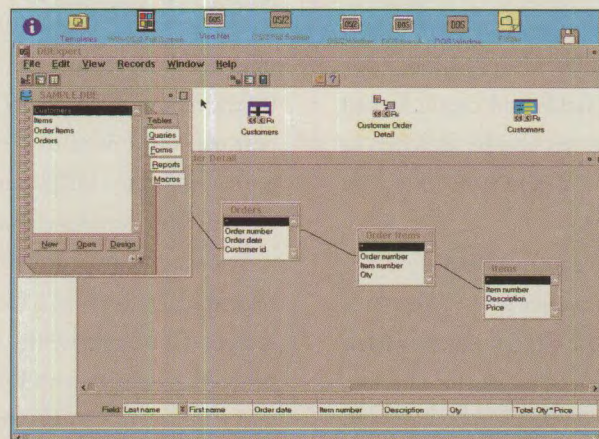
You can approach all functions in DBExpert through the Application Window. Once you have opened an existing application or created a new one, you can begin to create or modify application objects via a tabbed notebook. At this point you can

create tables, queries, forms, reports and macro objects. All objects are stored within the application's structure. To create a table object, for example, simply click on the table tab and begin defining the table's parameters. Use the OS/2 clipboard to copy a current application's structure to a new one.

DBExpert supports text, number, bitmap, date/time and memo field types. The program does not have a logical (yes/no) data type in this release, but it can be simulat-

ed through the use of check boxes in forms. Also not available in this version is a way to assign string constants to a field, which is useful, for instance, when you want the program to automatically place the period after a middle initial. (This can be accomplished with an update query or string calculation in a report.) Numeric data can be formatted as general, money, fixed decimal and percent.

As fields are defined, a wide range of validation rules may be assigned to them. For instance, a user can create a validation rule triggering an error message if an entry in an "income" field was less than \$1,000. Field validation rules can reference values in more than one field.



Tabbed notebook provides at-a-glance access to stored database files.

After you've finished creating tables, you can create forms using DBExpert's WYSIWYG form designer. Forms can be based on queries or tables. The query format allows you to quickly design fill-in-the-blank forms that can greatly simplify data analysis and retrieval. Forms can contain subforms, allowing users to scroll through detail records in a related form. Subforms may contain subforms—a particularly nice feature. Fields can be laid out on grid and assigned different fonts, colors and titles. A form can contain all sorts of buttons (slider, radio dial, etc.), checkboxes, list boxes, combo boxes, toggle boxes, bitmaps, text and simple graphics.

For advanced users, an important feature in the form designer is a form's ability to call macros or functions when events take place either at the form or field level. Events supported include Before and After data entry, Before and After deletion, and Before and After opening and closing a form or record. DBExpert also allows users great flexibility in customizing the view and control of data, which results in applications that can provide precise control of data entry. For instance, users can set a form's default view, edit related (underlying) tables, record locking control, order tabs when moving through fields and create locked ("look but don't touch") forms. Queries can also be attached to buttons in forms, allowing the creation of powerful "query by form" capabilities for enduser applications.

While the form layout feature is powerful, a couple of refinements need to be added to make it even easier to use. One nice change would be the ability to drag and drop field names from the pick list onto a form (the current procedure is a bit obscure: users must place the field box, then click on the field list), though the quick form feature does allow the user to place all the fields on a form and delete unneeded ones. Another refinement would be the ability for a right-click of the mouse button to show users an object's properties. As RDBMSs become more object oriented, this capability is becoming *de rigueur*. Maybe the next release?

DBExpert's query capabilities also are powerful. As is customary, the program has a visual query designer. When creating a query, a visual display of the table relationships is available. Tables can be added and deleted quickly from a query and relationships set using drag and drop. Within the query designer, which resembles the ubiquitous spreadsheet format made famous by Borland's Paradox, fields in related tables can be chosen from pick lists and quickly added to the query table. Several different basic query types can be created, including Insert, Delete, Make Table and Total.

In addition to the basic operators, some more esoteric query statements such as Between and Not Between are also supported, as well as a decent array of string, time, date and number functions. Unfortunately, there is no expression builder, which could save a lot of typing. For those with masochistic tendencies, the underlying SQL statement being assembled by the query can be accessed and edited.

For reports, DBExpert uses the popular banded approach found in many RDBMSs. Like the form designer, the report writer has a multitude of different WYSIWYG options. Reports can print report, page and group headers, and can contain subreports, which in turn can contain more subreports.

In addition to strong layout abilities, the report writer also possesses some muscular features that help it stand out from the crowd. One of the most important is a two-pass capability. This allows users to set up reports that can, for instance, calculate percentages of a total. To perform such a function with a one-pass system requires either programming or running the report twice. Another strong feature allows reports, like forms, to execute macros during report events. Supported events include On Open (of the report), On Close, On Format and On Print. Few DBExpert users will need to consider buying a dedicated report program. And since DBExpert is a multithreaded application, users can run large reports without bogging down the system.

For advanced applications, DBExpert can create very sophisticated macro objects. Macros can contain If, If-Else, While and Repeat-Until statements. A macro also can call another macro or function. Coupled with DBExpert's ability to call macros in form and table events, most users will never need recourse to a programming language.

But, I do have some complaints. This first release has no predefined label or mail-list templates. Since these types of reports are very common, their inclusion would be useful. Another minor limitation is the lack of ability to lay out snaking columns — a useful feature for text-heavy reports. But my biggest gripe is with the skimpy documentation, which copies the "minimalist" trend that has become increasingly popular as software publishers look to cut costs. The instructions need a clearly defined tutorial section for the beginning user, documentation of all product error messages and more examples of basic relational concepts and data manipulation. If you aren't familiar with PC-based relational DBMS products, you'd be best served by picking up a guide for the Access database system, or perhaps Paradox, as a supplement

DOT EXE

to DBExpert's slim manual.

Still, DBExpert looks like the robust end-user RDBMS for which OS/2 users have been waiting. (Make sure you have the 1.02 release.) And it has the potential to make a wonderful front end for a distributed DB/2 database. Its development and release is continuing proof that the OS/2 applications market is alive, well and growing. The suggested retail price is \$495, with a current promotional price of \$199 through the end of June. Put this product on your buy list. ♦

AT A GLANCE

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High-Compression Data Engines

Stacker 4.0 for OS/2 and ZipStream use two different approaches to extending your disk storage space.

BY STAN MIASTKOWSKI

The old truism that data expands to fill the storage space available is getting a bit trite, especially in this age of inexpensive, high capacity hard drives. For those of us who remember when 20MB hard drives were the standard, it's a humbling experience to go down to the local warehouse store and pick up a 1GB name brand IDE drive for \$399, as I did recently.

Yet space saving utilities that compress your data still keep going and going, and are popular sellers. There are some good reasons. For one, today's applications require tremendous amounts of space, with single application requirements often in the 15-20MB range (never mind the huge data files they produce). Even the largest hard drives can start to fill up fast. More pragmatically, there are still plenty of systems out in the real world with older low capacity hard drives. Then too, high capacity hard disk drives are a rarity in the ultra hot portable computer market. Space limitations in laptops require small physical drives, so capacities of 200-340MB are common.

For this review, I looked at two of the latest commercial compression products—Stac Electronics' Stacker 4.0 for OS/2 and DOS, and Carbon Based Software's ZipStream, a product from Australia. Although both squeeze data and program files down

to a fraction of their normal size, they take radically different approaches to the details, both in the underlying technology and the user interface.

Stacker 4.0

With its five-year history, Stacker has become the standard of commercial compression schemes. In fact, its LZS compression is licensed by a number of companies and is extensively integrated into commercial products such as backup software. The off-the-shelf version of Stacker uses a "container" approach—it uses a device driver to create a large file that essentially becomes a transparent drive where all the compressed files are stored.

Even though the latest incarnation of Stacker is named version 4.0, it's actually Stac's second OS/2 version. The initial version, released two years ago, suffered from painful installation and mediocre performance (I know from first-hand experience). And it only worked under OS/2; you were out of luck if you wanted to use the dual-boot features.

In version 4.0, Stac solved those problems, creating an easier to install and considerably faster product that works (as its name implies) under both DOS and OS/2 if you're using dual boot. However, if you're an HPFS fan, you're out of luck... at least for

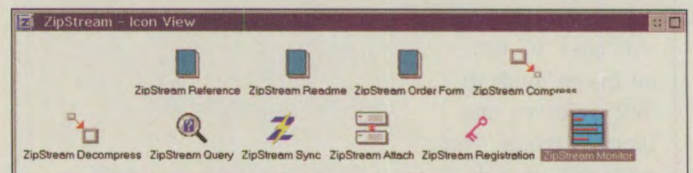
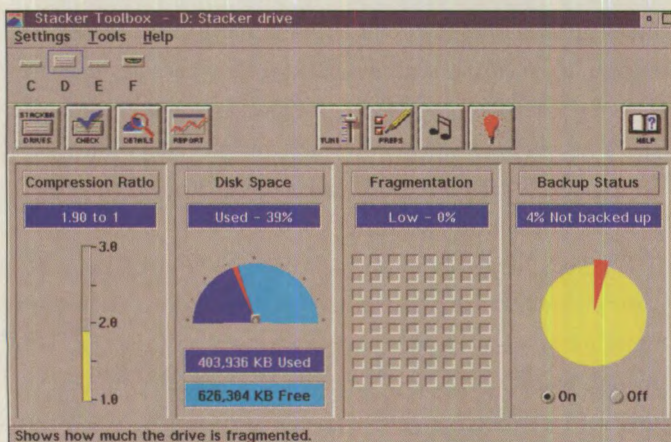
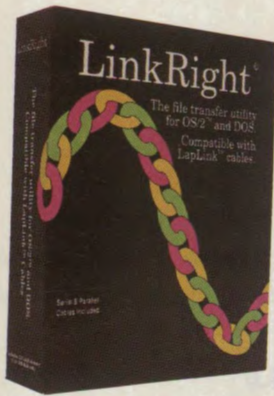


Figure 2: (Above) Although you can set up ZipStream to automatically compress and decompress files copied to its virtual drive, it also includes numerous utilities that let you control the process manually.

Figure 1: (Left) Stacker's Toolbox (available in both OS/2 and Windows) shows you detailed information on the state of your Stacker drive and lets you tune and optimize Stacker partitions.

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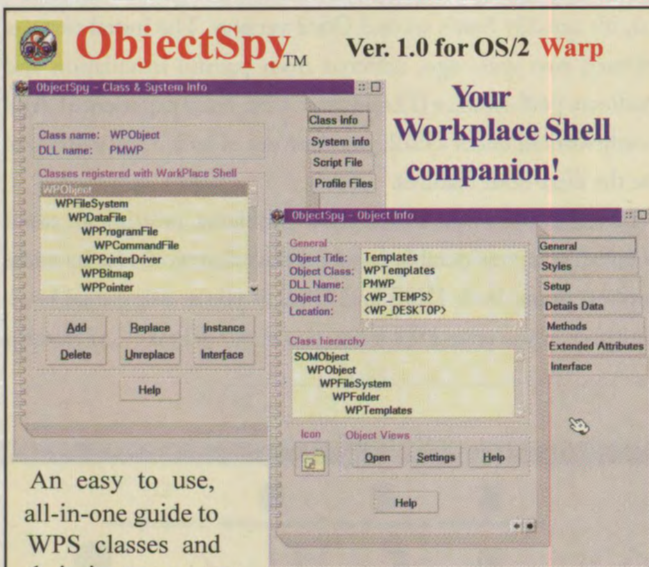
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30 OS2 Professional June 1995

DOT EXE

now. Stacker 4.0 only works under the FAT-based file system. A Stac spokesperson says an HPFS version will be available eventually, but declined to say when that might be.

Installation

Installing Stacker still takes awhile. You should start, of course, by making a full backup of your existing system. Then (as the manual suggests), you'll need to run OS/2 CHKDSK and create a Stacker-aware boot floppy. The actual Stacker installation takes place under DOS; you either need to dual boot to DOS or boot from the Stacker installation disk. Both express and custom setup options are available. Express makes most of the decisions for you, installing Stacker and compressing all the space on your drives.

Custom gives you much more control, allowing you, for example, to compress only certain drives or only part of a drive. I chose to compress my D: drive, a 432MB SCSI disk. The final part of the process—creating the actual compressed drive—can be time consuming, especially if it's filled with data; Stacker took about an hour to compress my drive. Stacker for DOS and OS/2 makes all the changes to both DOS and OS/2 startup files.

The early version I tested changed OS/2's CONFIG.SYS file, but as this article went to press I was told that future shipping versions will put their required lines into STARTUP.CMD instead. This is a wise choice because it leaves OS/2's already complex CONFIG.SYS alone, and simplifies troubleshooting in case something goes wrong.

The end result is impressive: my 432MB drive became a 1055MB drive. Average file compression is about 2.5/1 depending on the types of application and data files you have. Stacker uses sophisticated technology to wring every last bit of space from a drive. Besides its LZS file compression, Stacker uses a number of tricks. For example, under a standard FAT file system, fixed cluster sizes indicate unused space at the end of each file. That's a space waster, but Stacker uses up all the extra space. It also has a number of hidden features that protect your data. If the Stacker container file is damaged or even deleted, you can still recover your data.

Stacker's biggest strengths are its speed and transparency. Compression and decompression are virtually instantaneous—most users won't even notice any speed differential. And though Stacker includes utilities for tuning and optimizing its drives, they won't change the way you use your PC. Stacker just works, and well.

DOT EXE

ZipStream

ZipStream takes a very different approach to data compression, and one that's OS/2 specific. Unlike the "container" approach used by Stacker, ZipStream is a unique IFS (Installable File System) that mirrors access to the existing OS/2 file system (either FAT or HPFS). It doesn't work under DOS. Even though you create a drive letter for storing compressed files in ZipStream, files are actually compressed and decompressed on a file-by-file basis. For example, you create a drive (using an ATTACH command), and any file you copy to the drive is automatically compressed, and decompressed when you access it.

ZipStream comes on a single floppy disk, and installing it is a quick and painless process using OS/2's Device Driver Install. After rebooting, ZipStream is ready to use. Initially, it's not quite as transparent and automatic a process as using Stacker, but it doesn't take long to get used to using it. According to its makers, ZipStream uses a combination of proprietary and licensed commercial compression schemes. I found its average compression ratio to be about 2:1, although it's unique in letting you specify three different Warp compression schemes that trade off speed and degree of compression. Speaking of speed, ZipStream is considerably slower than the almost instantaneous compression/decompression of Stacker, but that's not a big problem because of the very different way that ZipStream works, not to mention that the product uses OS/2's true multitasking to do its compression/decompression work in the background.

Choices

Despite their different approaches, both Stacker and ZipStream do what they claim to do very well. And they both use safe and proven technology. I've used Stacker since its initial DOS version and have never lost any data. Whether you really need either of these packages depends on many factors, not the least of which are your storage needs and what type of hard drive you have. If you need to maximize your drive space with the least effort, Stacker is the obvious choice. You can install it and forget it. ZipStream is a better choice if you want to compress only certain files. However, you do need to be realistic about compression. For example, multimedia (sound and video) files are heavily packed with data and don't compress well. If multimedia's your thing, your best bet is to buy a big

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DOT EXE

drive and avoid compression.

Whether or not you have a large hard disk drive, you probably have space hogging seldom used files that you don't want to relegate to backup storage. This is one area where file compression can come in particularly handy. For example, I have nearly three years' worth of indexed online news stories stored on a Stacker drive. When I need to search them, they're immediately available. When I don't, they don't take up a huge amount of space, especially since Stacker compresses plain ASCII text at about 6/1. Your mileage, of course, may vary. But the bottom line is that both Stacker and ZipStream are excellent choices for maximizing your data storage. ♦

Stan Miastkowski is a writer and consultant who has covered the personal computer industry for the last 17 years from his base in the New Hampshire woods. He has been an OS/2 user since version 1.0, and was co-founder and publisher of the OS/2 Report newsletter. He can be reached on the Internet as stanm@bix.com.

AT A GLANCE:

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List price: \$90-\$100 (plus a \$20 rebate through 7/15/95); upgrade, \$69.95; Warp and Stacker are also bundled together for \$129 (plus a \$30 rebate through 7/15/95).

ZipStream

Carbon Based Software
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Queensland 4216 Australia
(011) 61 75 37 1949; fax (011) 61 75 29 1544

List Price: \$79.95; 30-day evaluation version available on CompuServe (Library 1 of OS2BVEN and Library 4 of OS2USER) and through many OS/2-specific Internet FTP sites.

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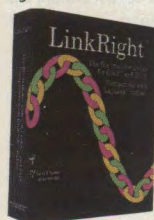
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COMMUNICATIONS

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Multi-Net Communications
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Suitable Alternatives

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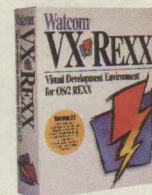
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A PM programmer's tool for the creation of fully featured GUIs for OS/2. Acting as an extended resource editor, Prominare supports all OS/2 controls for all versions of OS/2, including Warp.

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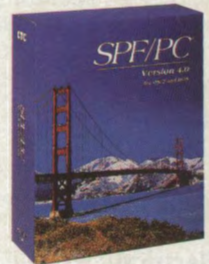
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DEVELOPMENT TOOLS • OTHER

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TCXL Programmer's PowerPak - Multi Platform \$299.00

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Innovative Data Concepts
The TCXL Programmer's PowerPak, a multi-platform user interface package, enhances C programming. This all-inclusive package combines the power of TCXL's CUA-style user interface with an interactive user interface design tool, high speed data compress, customized printer output, data file management, and the ability to write applications for both DOS and Windows with one set of source code. Supports DOS, DOS Protected Mode Windows, OS/2 Character Mode, and OS/2 Presentation Manager.

Unite CD-Maker \$219.00

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Cirrus

Unite CD-Maker is a workplace shell enabled mastering product for OS/2 Warp. Use it to create CD-Roms.

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Update it! for DOS, Windows and OS/2 is a multi-platform file update utility that lets developers and publishers ship compressed, password-protected change "files" for incremental product updates, and bug fixes, etc.... without the need to ship a complete new copy of the product.

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VisiiParts Version 2.0

IS International



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OS/2 Single User Version \$329.00

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Client/server application development takes on new power with Visual Age, which includes visual programming tools, a library of reusable parts, distributed database support, and graphical user interface support. Includes IBM Smalltalk object-oriented programming environment.

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DB2/2, Client Server CD-ROM \$1,249.00

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DB2/2, Client Server 3.5" diskette \$1,249.00

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IBM

Hard-copy publications only; base set of books, plus programming and reference guides, query manager pubs, messages and problem determination guide, and master index.

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Designer Software, Inc.

Full-featured OS/2 database for users and developers. Create forms, reports, or complete applications without programming or SQL. Works with DB2/2, dBASE, and Oracle.

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Manage-It! \$115.00

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Baron Software Services

Manage-It! provides the Help Desk administrator with the necessary software tools to track incoming calls, produce statistical reports and maintain a knowledge base essential to the support desk.

SQL for OS/2 Version 3.2 \$295.00

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Watcom

Watcom SQL for OS/2 is a high-performance standalone SQL client/server DBMS for OS/2. Watcom SQL for OS/2 includes a variety of interfaces to access Watcom SQL from many popular OS/2, DOS, and Windows applications including embedded SQL application development with popular C/C++ compilers.

NETWORKING

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Corel Corporation

With CorelSCSI you can daisy-chain up to seven disk, CD-ROM, WORM, and other SCSI drives to maximize the power of your desktop OS/2 machines.

Desktop Observatory \$39.00

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Remotely configure and password-protect desktops. Prevent deletes, copies, moves, dragging, shadows, or renames, or hide objects from view. Launch your own C or REXX routines on any network client, based on event.

NETWORKING

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HODstar Support Services
Provide your employees with a quick and convenient way to keep up-to-date with your company's activities! Employees can browse current and older messages, cut and paste critical information such as phone numbers and schedules to their own applications, or print and save individual messages. Also available in 'unlimited-use' license. Uses the same database as all HODstar products.

Unlimited site-license \$365.00

Order number 310 MSR \$375.00

HODstar™ Monitor (100-user license) \$269.00

Order number 254 MSR \$285.00
HODstar™ Support Solutions
HODstar's base-line product, Monitor, provides your support staff complete profiles and assignments for all resources on any network without giving users access to the actual servers. Also available in single-user license, site-wide, or 'unlimited use' license.

LAN Distance Remote Version 1.1 \$57.95

Order number 343 MSR \$69.00
IBM
The IBM Lan Distance family of products extends the "office LAN" to remote users. It allows you to transparently dial in and execute office applications as if you were physically connected to the LAN.

LAN Distance Remote AL Cert. \$49.00

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LAN Intensive Care Utilities for IBM LAN Server 3.0/4.0 \$899.00*

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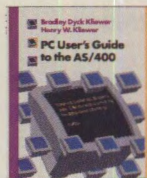
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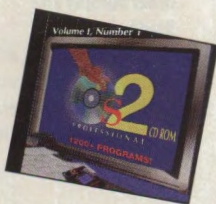
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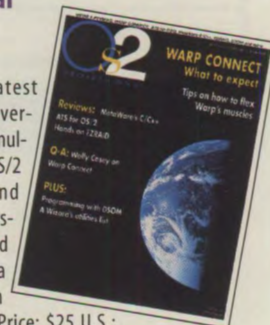
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HANDS ON

CLEARLOOK 1.5

With more than 40 changes from version 1.1, Clearlook 1.5 looks headed for success.

BY BRUCE BYFIELD

The ad asked for new beta testers. For \$20, I could try a new OS/2 word processor. If I liked it, the money would go toward the price of the finished product.

That was my introduction in September 1994 to Clearlook. Several weeks and several betas later, I decided to buy. I've been beta testing versions of Clearlook ever since.

At times, I've doubted my support. Clearlook still lacks a few advanced features. It has been unrealistic about release dates. And at times, I've wondered if I've committed to vaporware.

But downloading Clearlook 1.5 has helped quiet those doubts.

DeScribe 5.0, it's not. Yet, with more than 40 changes from version 1.1, ranging from minor enhancements to new features and greater customization, version 1.5 is a major upgrade that adds to my conviction that Clearlook is geared for success. Clearlook 1.5 has many minor, but welcome enhancements. They include hanging and double indents, the defining of a style by importing current settings and hyphenation. An especially welcome improvement is Clearlook files no longer need to be saved with a .ctx extension. Single line scrolling has also sped up, while the repetition of a single line down the screen during scrolling has been eliminated.

One major feature Clearlook 1.5 adds is support for all characters on the current code page. These can be added by using the Alt key and the numeric keypad or—as in WordPerfect—through the menu. Clearlook's menu window is easier to use if resized, and does not number the characters for convenience, as WordPerfect's does. Nor does it yet support different code pages. Still, at least I appear less ignorant when typing non-English words.

Other major features are completely new import filters for WordPerfect 5.1/5.2 and 6.0. Version 1.1's WP5.1 filter was little better than an ASCII import. By contrast, with 1.5's, most formatting is preserved. Although I have had some spacing problems, they seem traceable to previous use of WordPerfect's filters. Clearlook's filters do not import, and I look forward to the Ami Pro and MS Word filters, which should be available by the time this article is printed. However, Clearlook's filters are now sufficiently reliable that I can conclude my transition from WordPer-

fect with its ceremonial removal from the hard drive. These changes should go a long way toward making Clearlook more acceptable to general users. However, observers of the OS/2 market might also be interested in Clearlook's responses to mixed feedback. Those who dislike the decentralized command structure can now boot directly to the editing window, bypassing the status window. Similarly, font attributes such as italics and bold can be toggled off with the same command that starts them, or by Ctrl-R. Users can even choose between the OS/2 or the redesigned Clearlook directory windows.

Months ago, I pegged Clearlook as a scrappy little company with a gift for public relations. It has made mistakes, such as being slow to put its demo on an FTP site. But the friendliness of its technical support is a byword. John McCarron, Clearlook's president, regularly answers comments in the comp.os.os2.apps newsgroup—one of the few commercial vendors to do so.

Recently, the company announced that it will develop for OpenDoc and that its demo will be preloaded on some IBM and clone systems.

I like instant gratification as much as anyone, but Clearlook 1.5 will do until the version 2.0 beta tests later this summer. ♦

Bruce Byfield is an instructor of English at Simon Fraser University in Burnaby, Canada. He can be reached at byfield@monashee.sfu.ca.

AT A GLANCE

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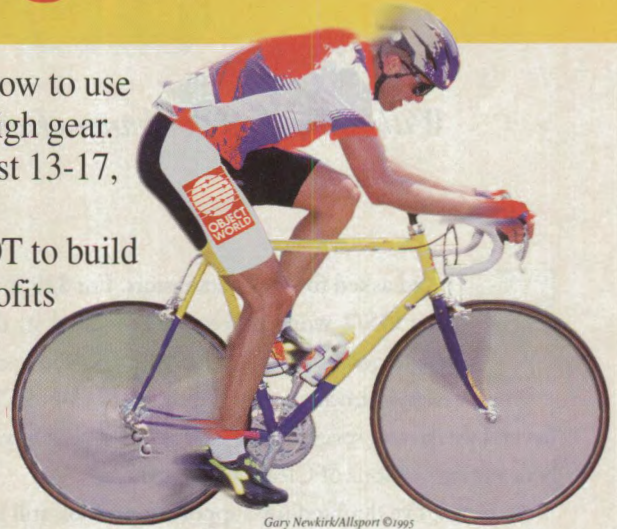
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Product News for the OS/2 User

SCOOPS

PATROL Your Notes

Network administrators will soon have a new tool to help them monitor their Lotus Notes environments. BMC Software is currently implementing support for Lotus Notes into its application management tool, PATROL. A PATROL Knowledge Module (KM) is under development to monitor and manage Lotus Notes running under OS/2, UNIX and Windows NT environments.

Using PATROL in con-

junction with Lotus Notes, managers can take proactive recovery actions to ensure optimal availability of Notes servers and databases. The PATROL KM is a library of managing tools designed to monitor mail servers and gateways, replication, databases, server resources and communications.

The KM continuously monitors the mail routing process, making sure that the router is operational, checks

for undelivered and dead mail and monitors the size of users' mail databases to reduce disk space if necessary. PATROL is adaptable to any size Notes environment, from the small office to the thousand-user network, the company says.

PATROL monitors server disk space size and server status and checks modem and line availability. The software is capable of issuing reports for problem tracking and resolution documentation. By

extending support to Lotus Notes, PATROL will enable users to move forward in managing their computer enterprises, the company says.

The PATROL KM for Lotus Notes will first support UNIX and OS/2 and will be available in August, with support for Windows NT to follow, says Penny Smith, manager of market communications for BMC Open Systems Products.

New Products

LAN manager

ProServe CX v2.0 has been released by Sytron Corporation. The software is a server based data storage manager for Local Area Networks running Novell NetWare v3.11, v3.12 and v4.0x. For client



ProServe v2.0, a server-based data storage manager for LANs, protects all DOS, Windows and OS/2 workstations.

backup and restore, ProServe CX protects all DOS, Windows and OS/2 workstations and NetWare 2.x, 3.11, 3.12 and 4.0 network servers.

ProServe CX v2.0 features autoloader device support, automatic driver distribution, an overwrite media option, software anti-throttle support and enhanced concurrent transfer.

Pricing for ProServe CX starts at \$299.

Sytron Corporation, 134 Flanders Road, Westboro, MA 01581. (508) 898-0100, fax (508) 898-2677.

Uncoded visuals

Prominare Inc., of Canada, has launched Prominare Designer, an OS/2 Rapid

Application Development tool.

With Prominare Designer, users can create visual interfaces within minutes without written source code.

Multiplatform development is made easier by the software's ability to generate code across platforms for multiple class libraries and compilers.

As an extended resource editor, Prominare Designer supports all versions of OS/2. The software also supports all OS/2 PM controls including



With the aid of Prominare Designer, users can create visual interfaces within minutes without written source code.

MMPM/2 and Pen for OS/2.

Prominare Designer sells for \$699.

Prominare, Inc., 222 The Esplanade, Suite 618, Toronto, Ontario, Canada M5A 4M8. (416) 363-2292, fax (416) 363-6157, CompuServe 70363,1175; Internet query@prominare.com.

MARKETLINE

Memory blocks

SmartHeap Version 2.2 from MicroQuill Software Publishing is a memory management library and debugging toolkit. The software allows OS/2 users to allocate and free small memory blocks more efficiently while providing support for shared memory pools. Users also can detect errors such as overwrites, double-frees and linkage in shared memory.

As a memory management library, SmartHeap provides replacements for ANSI C "malloc" and C++, effectively allocating large amounts of memory while lessening swapping and paging. SmartHeap also features alternative memory managers including fixed-size blocks and stackable and moveable block allocaters.

SmartHeap version 2.2 for OS/2 costs \$695. Free upgrades are available to present SmartHeap users.

MicroQuill, 4900 25th Avenue, NE, Suite 206, Seattle, WA 98105. (206) 525-8218, fax (206) 525-8309, Internet info@microquill.com.

Wake-up call

Practical Enhanced Logic Corp., has announced its release of Systo-Tek, software designed to detect CPU fan failure on Pentium and 486DX systems. Systo-Tek emits a piercing sound upon failure of the CPU's miniature cooling fan. Fan failure can allow the CPU to overheat,



Systo-Tek protects your computer from dangerous overheating by emitting a piercing sound if your CPU's cooling fan quits.

causing damage to the processor and mother board and possibly triggering the dissemination of erroneous data. Systo-Tek costs \$19.95.

Practical Enhanced Logic Corp., 22695 Old Canal Road, Yorba Linda, CA 92687. (714) 282-6188, fax (714) 282-6199.

Billions and billions

The Cosmos for OS/2 Version 4.0 from Mensys displays and prints star charts, simulates celestial events, and can zoom in and out of star groups, with or without animation. The application features the Yale Catalogue of Bright Stars, a deep sky catalogue and deep sky database with an optional binary version of the Smithsonian Astrophysical Observatory catalogue.

Fully integrated on-line help uses OS/2 Help Manager featuring a "quick start" option and an encyclopedia of astronomy.

Although not necessary, a mathematical coprocessor is recommended for use. Cosmos for OS/2 is priced as follows: Version 4.0, \$89; 3.0

Upgrade, \$39, and SAO database, \$15.

Mensys, P.O. Box 674, 2100 AR Heemstede, The Netherlands. (011) +31 23 47 08 37, fax (011) +31 23 47 11 96, CompuServe 100272, 3130.

Fungus amongus

Disknet 3.03, has been released by Reflex, Inc. The software provides the user with a transparent, multilevel anti-virus security system.

Disknet automatically scans and verifies disks as virus-free. The software features network

messaging to warn of detected viruses and multiple defense security layers.

For LAN workstations, installation can be structured to use the network security file for operator identification and to automatically execute logon procedures.

Cost for a five user license begins at \$495. The software is compatible with Windows 3.x, OS/2 and all major networks.

Reflex, Inc., 2100 196th St., SW, Suite 124, Lynwood, WA 98036. (800) 6-REFLEX, fax (206) 776-2891.

Audio conferencing

Call Port, an audio conferencing system, is now available from Coherent Communications Systems Corporation.

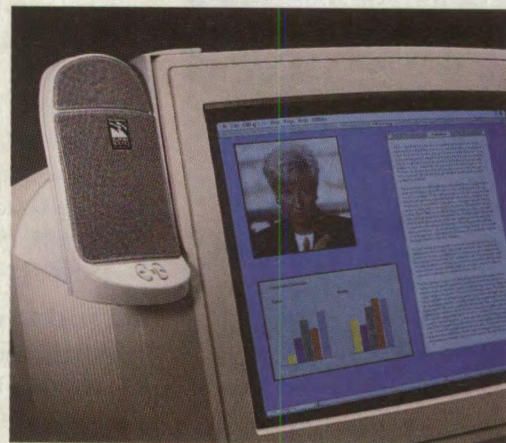
Consisting of a loudspeaker and power amplifier, a low noise directional microphone with preamplifier and an acoustic echo canceller integrated into compact housing, Call Port is a hands-free, full duplex unit for the PC or workstation conferencing environment. The unit can be placed on the desktop or

mounted on either side of any PC or workstation monitor. Call Port's microphone pickup area and speaker output are designed for use in modular office or cubicle areas allowing coherent audio conferencing for up to three people seated in its vicinity.

Call Port standard version costs \$395. A silicon graphic version sells for \$495.

Coherent Communication Systems Corporation, 44084 Riverside Parkway, Leesburg, VA 22075. (703) 729-6400, fax (703) 729-6152.

For audio conferencing, the Call Port consists of a loud speaker, amplifier and microphone that can be placed on the desktop or mounted to the monitor.



News

You got it where?

DeScribe, Inc. is charting some interesting new sales channels to increase awareness of its DeScribe Word Processor. DeScribe is making its Voyager CD-ROM available through the Barnes & Noble bookstore group and other more traditional OS/2 software distribution channels.

The Voyager CD is a fully functional, single user version of DeScribe 5.0 and for a limited time is packaged with the DeScribe User's Guide. The package (ISBN# 1-56529-885-3) is available at Barnes &

Noble, B. Dalton, Doubleday, Scribner's, and Bookstop bookstores and at press time was expected to retail for \$49.95. The Voyager CD will also be available from OS/2 Express for \$44.95.

The Voyager CD has no expiration date. However, to help keep costs down, the company will not offer refunds or technical support for the product.

Arcada backup

Designed to exploit Warp's 32-bit multitasking capabilities, Arcada Software, Inc. has

released a new version of Arcada Backup Exec. The backup software includes a Wizard function that guides the user through the backup and restore processes.

The software also features a disaster-recovery capability. This allows the user to restore lost data directly from the backup medium without having to reinstall the operating system. Arcada Backup Exec is available in quarter-inch cartridge and SCSI versions.

A suite complement

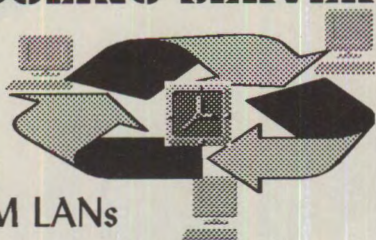
With an eye toward the office

suite market, Corel is offering its CD Office Companion. The CD features apps for business users in the office and on the road. CorelFLOW 2 for business diagramming and flowcharting and Corel GALLERY 2, a multimedia file manager, are included with the package. These two components are fully functional, scaled down versions of their standalone predecessors.

The CD Office companion also includes a PIM, CorelFAX, and a Web Browser. At press time the CD was expected to retail for \$149. ♦

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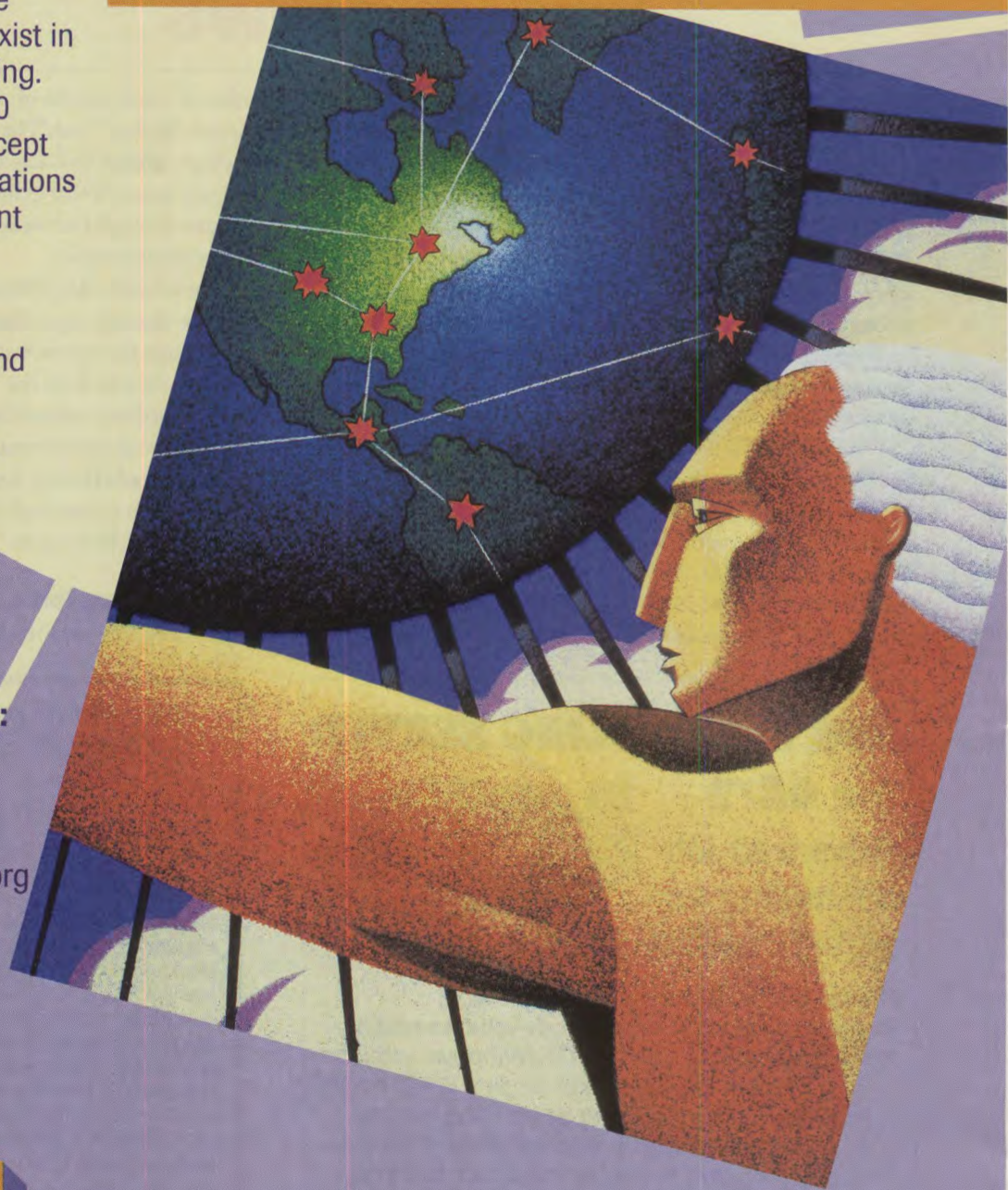
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Exceptional REXX

BY RONNY RICHARDSON

Exceptions are problems outside the programmer's control. For example, a user might press Control-Break to halt a program or a disk drive might not be ready. Exception handling adds logic to a program to deal with these conditions.

What Is Exception Handling?

Normally, a program follows a predetermined pattern. Look at CAPITAL.CMD—its only function is to see if the user started it with a "/" to get help. Knowing that, we know precisely what sequence of events will take place.

Or do we? If the user presses Control-Break, the program aborts. If we want the program to continue running, then we need to build in exception handling.

Do You Always Need It?

No! A program written to solve a temporary problem rarely needs exception handling. The programmer will most likely watch the program run and can correct any problems. Likewise, programs written for the programmer's personal use rarely require this option. But programs that will be used by others or that need commercial polish should have exception handling.

Types Of Exception Handling

REXX recognizes six types of exceptions as outlined in

CAPITAL.CMD

```
/* Name:      CAPITAL.CMD
   PURPOSE:   Convert A Word To All Uppercase */

HelpCheck = ARG(1)
IF HelpCheck = "/" THEN
DO
    SAY "Batch File Utility That Takes"
    SAY "The First Word Passed To It"
    SAY "Converts It To Uppercase And"
    SAY "Passes It Back To The Batch File"
    SAY "Via The Variable RETURN In"
    SAY "The Environment"
    EXIT
END
DROP HelpCheck

Word = ARG(1)
PARSE UPPER VAR Word OutWord Word
ENV = 'OS2ENVIRONMENT'
LastRC = VALUE('Return', OutWord, Env)
```

EXCEPT-1.CMD

```
/* NAME:      EXCEPT-1.CMD
   PURPOSE:   Shows Handling Control-Break */

HelpCheck = ARG(1)
IF HelpCheck = "/" THEN
DO
    SAY "Shows Handling Control-Break"
    EXIT
```

Table 1 — Types Of Exceptions

Error	Occurs when a command to OS/2 returned control to REXX with some indication that it encountered an error—usually a return code.
Failure	Signals that a command to OS/2 returned control to REXX with some indication that it encountered a failure.
Halt	Notifies the error handler that the user pressed Ctrl-Break.
NoValue	Raised when a variable that has not been initialized is used as though it contained a value.
Not Ready	Raised by input/output action that fails. This can happen with the Say and Parse instructions, the LineIn and CharIn functions or by reading beyond the end of a file.
Syntax	Typically raised when a program has a bug. These are true syntax errors and are not covered here. However, some syntax errors are exceptions: for instance if the program is unable to locate an external subroutine, or if a variable obtained from a user that contained character data (rather than a number) was used in a calculation.

CODE CACHE

```

END

CALL RxFuncAdd 'SysLoadFuncs', 'RexxUtil',
              'SysLoadFuncs'
CALL SysLoadFuncs

10CALL ON HALT

CLS
CALL SysCurPos 18, 00
SAY "Press Ctrl-Break With Program Running"
DO I = 1 TO 10000
    CALL SysCurPos 12, 30
    SAY "Loop" I "Of 10,000"
END

EXIT
HALT:
    CLS
    SAY "Currently On Loop #" || I "Of 10,000"
    SAY "Do You Really Want To Stop (Y/N)?"
    Character = SysGetKey(NoEcho)
    IF Character = "Y" THEN EXIT I
    IF Character = "N" THEN EXIT I
    CLS

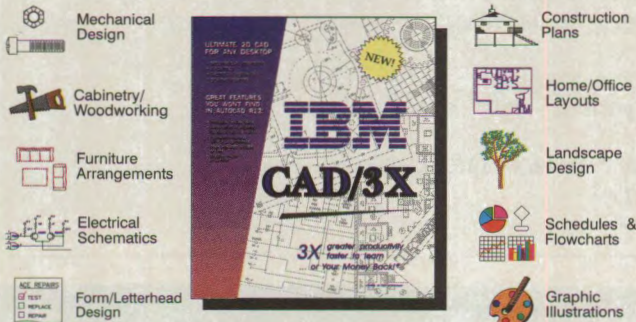
```

Table 1. To manage these exceptions, REXX provides three different types of exception handling: default, Type I and Type II. When a REXX program first starts, the program has no internal condition handlers turned on. In REXX terminology, conditions are said to be disabled. While these conditions can still happen, they are handled by REXX itself and not by the program. REXX ignores the Error, NotReady and NoValue conditions. By default, REXX treats a Failure condition as an Error condition, which it ignores. The default handlers for Halt and Syntax immediately terminate the program, then display a message and Return a return code to OS/2. When exception handling is built into the program, it takes priority over the default exception handling built into REXX itself.

Type I exception handling is invoked with the Signal On instruction. It has the following characteristics:

- It works for any of the six conditions.

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CODE CACHE

- As soon as the first condition is encountered, that condition handler is disabled.
- It automatically terminates all Do, If, Select and Interpret instructions.
- It does not terminate active procedures.
- It is generally not possible to return to the point where the condition was raised.

Type II exception handling is invoked with the Call On instruction. It has the following characteristics:

- It works for only four of the six conditions: Error, Failure, Halt and NotReady.
- It is not disabled when a condition is encountered.
- It does not terminate Do, If, Select or Interpret instructions.
- It does not terminate active procedures.
- A Return instruction will return the program to the point where the condition occurred.

```
CALL SysCurPos 18, 00
SAY "Press Ctrl-Break With Program Running"
RETURN
```

EXCEPT-2.CMD

```
/* NAME:      EXCEPT-2.CMD
   PURPOSE: Shows Exception Handling */

HelpCheck = ARG(1)
IF HelpCheck = "/" THEN
DO
    SAY "Shows Exception Handling"
EXIT
END

CALL RxFuncAdd 'SysLoadFuncs', 'RexxUtil',
'SysLoadFuncs'
CALL SysLoadFuncs

SAY "Make Sure A-Drive Has No Disk In It"
SAY "So The 'Not Ready' Error Is Raised"
SAY "Remember, OS/2 Takes Several Seconds"
SAY "To Figure Out The Drive Is Not Ready"
```

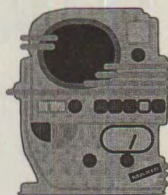
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CODE CACHE

```

PAUSE
SIGNAL ON NOTREADY

TOP:
CALL LineOut "A:JUNK.TXT", "Erase This File"

EXIT
NOTREADY:
    SAY "Failure Writing To A-Drive"
    SAY "Would You Like To Try Again (Y/N)?"
    Character = SysGetKey(NoEcho)
    IF Character = "n" THEN EXIT I
    IF Character = "N" THEN EXIT I
    SIGNAL ON NOTREADY

    SAY "Trying Again"
    SAY
SIGNAL TOP

EXCEPT-3.CMD

/* NAME:      EXCEPT-3.CMD
   PURPOSE: Shows Exception Handling */

HelpCheck = ARG(1)
IF HelpCheck = "/" THEN

```

Enabling/Disabling Exception Handling

If a program tested for every condition that could arise everywhere possible, even the simplest program would be overburdened with exception handling. The solution in REXX is to turn on exception handling and define which subroutine will handle each specific condition, and REXX then automatically jumps to that subroutine any time a condition occurs.

Once the exception handling routines have been written, the syntax to enable each one is:

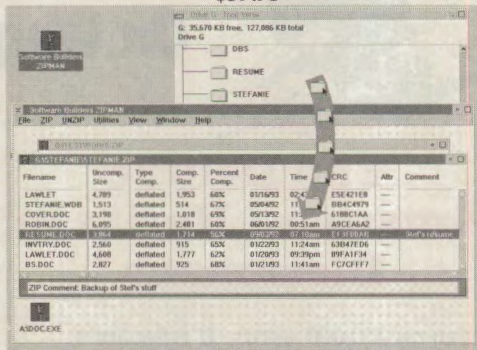
`SIGNAL/CALL ON Condition [NAME Label]`

where Condition is the condition to trap and Label is the optional label that starts the trapping routine. If no label name is given, the name of the condition is used. While only one handler per condition can be active at any given time, it is easy to switch between exception handling routines as needed. If you need to turn exception handling back off, just replace the On with an Off.

It is valid to use an Exit instruction to terminate the

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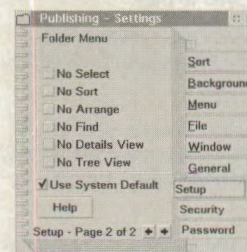
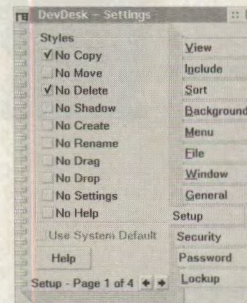
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program inside an exception handler. When used with Type II exception handling, it is also valid to use a Return instruction to resume processing at the point where the condition arose.

Enabling Examples

EXCEPT-1.CMD is a demonstration program that counts to 10,000 using a loop to simulate a "hung" program. If the user presses Control-Break, it raises the Halt condition, and the Halt internal subroutine takes over to trap the condition.

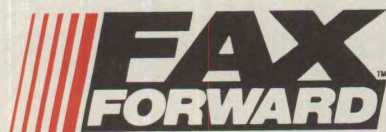
After the Halt subroutine name, the next line clears the screen. The next two lines ask a question. The fifth line gets an answer from the user. If the user presses the "y" key, line six or seven terminates the program. If the subroutine reaches line eight, the user wants to continue, so it clears the screen, repositions the cursor, and replaces the original message on the screen. Finally, it returns control to the line in the program after the line where the condition was raised.

```
DO
  SAY "Shows Exception Handling"
  EXIT
END

CALL RxFuncAdd 'SysLoadFuncs', 'RexxUtil',,
  'SysLoadFuncs'
CALL SysLoadFuncs

SIGNAL ON NOVALUE
DROP (VarNotSet)

NOVALUE:
  SAY "The Variable On Line Number" Sig1,
    "Does Not Have A Value"
  SAY "The Line Is:      " ||,
    SourceLine(Sig1) || " "
  SAY "The Program Is Aborting"
  EXIT Sig1
```



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EXCEPT-2.CMD is a demonstration program that tries to write to a file on the Drive A using the Lineout function. However, before it begins it asks the user to make sure there is no diskette in the Drive A. That raises the NotReady condition and runs the corresponding subroutine.

Like EXCEPT-1.CMD, it asks if the user he wants to continue. Since the exception handling was enabled with the Signal On instruction, a Return instruction cannot be used to return control to the main program. Instead, another Signal On instruction is used to jump back to the main routine. As we will see later, that is not always possible. Type I exception handling is disabled as soon as the first condition is raised so line seven in this routine turns it back on.

EXCEPT-3.CMD is a demonstration program that raises the NoValue condition by trying to drop a variable that has not been initialized. Its exception handling subroutine displays the line number where the error occurred (using the special Sigl variable) and the line containing the error (using the SourceLine function) and then exits.

Selecting Between Type I And II

The Type I exception handler does not allow you to return to the location where the condition was raised, except in very simple programs. While it terminates all Do loops and similar structures, it does not terminate the active subroutine. When a condition is raised in a deeply nested subroutine, the lack of the ability to return to the location that raised the condition makes it very difficult to back out of the nested subroutine structure.

Type I exception handlers are best used when the program displays information about the condition and then terminate. They can also be useful in dealing with conditions that can be isolated to a particular subroutine, so the exception handler knows how to return to the active subroutine. Using a Type I exception handler across multiple subroutines and expecting the program to successfully resume running is problematic at best.

The Type II exception handler often has a delay between the time a condition is raised and the time it is trapped, since REXX

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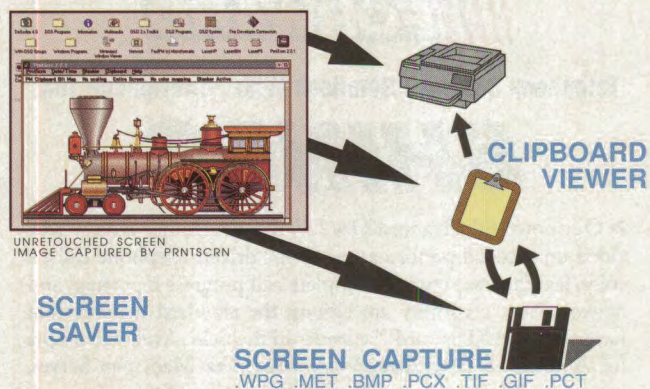
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CODE CACHE

specifies that the Type II exception handler traps the condition at the end of the current clause. This is why the Type II exception handler cannot be used for the Syntax and NoValue conditions. Any clause containing one of these conditions is most likely too flawed to continue executing until the end of the clause is reached. However, its ability to return to the program line immediately following the exception makes it the method of choice in most cases where the program is to resume execution after the exception.

Available Information

REXX has several internal functions that return information the exception handler can use either to display information for the user or to make a decision on how to proceed. The Condition function is used to return the name and description of the condition being trapped, the keyword that was being executed, and the state of the currently trapped condition. Additionally, the Error-Text function returns the REXX error message associated with an error number and the SourceLine internal function is used to

display lines of the currently active program.

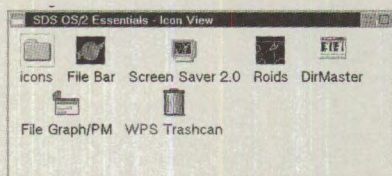
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You may not need an exception handler for every REXX program you write. However, when you want a clean, professional looking program for distribution (or just to impress your co-workers), take the time to add a few exception handling routines. Not only will it make your programs look better, but it should relieve some of your support headaches. ♦

*Ronny Richardson has written three books for McGraw-Hill on OS/2. They are OS/2 Batch Files To Go, Writing OS/2 REXX Programs and Writing VX*REXX Programs. He is also an Associate Professor of Business at Quincy University.*

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THE I.S. NOTEBOOK

Tips and Techniques for the OS/2 Professional

Multiple Installations Made Easy

BY GORDON SCOTT

Warp is not hard to install, but installing any operating system on multiple systems is no simple matter. If you need to install OS/2 exactly the same way on each of many systems, then you should know about response files and remote installation tools.

OS/2 provides not one, but two solutions for the problem of multiple installations. The first solution is the CID (configuration, installation and distribution) utility. This is a high-powered approach to installing OS/2 on systems throughout your company via a LAN. If you have only a few systems to install (less than 10), then you can use a subset of the CID utilities and simply install from a portable CD-ROM or external hard drive. The second solution is to use automated response information. This technique is normally used as part of CID tools but can also be used without a LAN.

The automated response information is contained in a response file. A response file of pre-written data contains all the options you want installed with OS/2. During the installation, the response file answers all of OS/2's prompts for you. The response file is a powerful way for you to ensure each installation executes quickly and is consistent with all other OS/2 installations. Consistency is no hobgoblin of the mind where installing OS/2 is concerned; consistent installation of OS/2 means that the OS/2 support staff in your organization can spend less time understanding everyone's intimate setup and more time improving their productivity.

In the following steps, assume that you want to use a response file to have OS/2 installed from a portable CD-ROM drive or external hard drive.

These procedures assume that your target systems can access such devices before the process of installation begins. These procedures also assume you have met all of IBM's licensing terms and conditions for installing OS/2.

Retrieve the sample response file from the OS/2 installation utilities.

- On a system where OS/2 Warp is already installed, edit the file:

`\OS2\INSTALL\SAMPLE.RSP`.

If you did not install the Optional System Utilities during your installation of OS/2 Warp, then SAMPLE.RSP may not be on your hard drive. If it is not in the \OS2\INSTALL subdirectory, use one of the following steps. If you are installing from diskette:

- Insert disk 7 into drive A.
- At an OS/2 command prompt, Enter `UNPACK A:REQUIRED C:\OS2\INSTALL\n\SAMPLE.RSP`

If you are installing from CD-ROM (Note: D represents the CD-ROM drive).

- At an OS/2 command prompt, Enter `UNPACK D:\OS2IMAGE\DISK_7 \REQUIRED C:\OS2\INSTALL\n\SAMPLE.RSP`

- Edit SAMPLE.RSP

If you have used OS/2's EASY INSTALLATION, you probably already have the SAMPLE.RSP file on your hard drive. If you used the Advanced installation, you would have had to select the Installation Utilities checkbox on the MORE dialog box for the Optional system utilities. By default, Installation Utilities will be installed if the Optional system utilities checkboxes are selected during the installation process.

The UNPACK command can also be used to selectively retrieve any individual file from a packed file. The trick is knowing which packed file to search and knowing the name of the file you want. For more help on using the UNPACK command, type `HELP UNPACK` at the OS/2 command prompt.

Modify the line in SAMPLE.RSP that specifies the source drive and path of the OS/2 DISK.

- Search for SourcePath.
- Modify the sample SourcePath line to read: `SourcePath=D:\os2image`.

This command assumes two things: first, if you are installing from a portable CD-ROM drive, the D: is assumed to be the drive letter; second, if you are installing from a portable, external hard drive, you must have properly set up your directory structure on the hard drive. The step as shown here assumes that your portable hard drive is the D: drive and that on that drive you have all the disk images arranged in a tree structure under the \os2image directory.

To set up the disk images on a portable hard drive you can simply copy the directory \os2image and all of its subdirectories from any OS/2 installation CD to the hard drive.

Specify a default display adapter.

- In SAMPLE.RSP search for: `DisplayAdapter=0`.
- Modify the line to read: `DisplayAdapter=7`.

(Note: This sets the installation to use the default SVGA driver. Leaving it at 0 accepts OS/2's own determination of the display adapter. If all your monitors can use the same driver successfully, you can use this method to speed installation.)

You can use similar techniques for any other driver you want to install. Look through the response file for other device driver key words (such as: DefaultPrinter=, CDROM=, SCSI=DDIDD=, DDIDest=, DDISrc=). Some device drivers require the use of a device driver profile (.DDP file). If you are using a special program to install device drivers, be sure that the .DDP file gets copied over to the target system during installation. The DDI* keywords are used for this purpose.

Add special lines to the CONFIG.SYS file on the target system.

- Search for: ConfigSysLine.
- Change the line KEYVALUE=a valid Config.sys statement to:
ConfigSysLine=CALL COPY C:\os2.ini
C:\os2ini.bak
ConfigSysLine=CALL COPY
C:\os2sys.ini C:\os2sys.bak.

These are two useful lines to have in the CONFIG.SYS. This procedure can give you a quick way to back up your .INI files without adding the overhead of the archive procedure. If you wanted all of your target systems to have this procedure included, you could add it to the response file and OS/2 would add these lines during installation.

Any other lines you want to add to the CONFIG.SYS file can be added as well. A word of caution: the response file and the installation program do not check whether the lines you are adding to the CONFIG.SYS are valid. Be certain that whatever you add works correctly.

Prepare the OS/2 installation diskettes to use your new response file.

(Note: Be sure to make a backup copy of OS/2's disk 1 before the following procedure.)

- Delete the file: SYSINST2.EXE from a copy of OS/2 disk # 1.
- Delete the file: BUNDLE.
- Edit the CONFIG.SYS file on this same disk.
- Change the line:
SET OS2_SHELL=SYSINST2.EXE to
SET OS2_SHELL=RSPINST.EXE.
- Delete the statement:
DEVICE=MOUSE.SYS.
- Close the editor, saving the changes to the CONFIG.SYS file.
- Copy SAMPLE.RSP, once you have modified it as you like, to disk 1.
- Rename SAMPLE.RSP to
OS2SE30.RSP.
- Copy RSPINST.EXE from an
\\OS2\\INSTALL subdirectory to disk 1.

Once you have made these changes, you can then use the response file to automate the installation of OS/2 quickly and effectively. You can then use that same installation data for another system. When OS/2 prompts you to insert disk 1 into drive A, insert your modified diskette instead of the normal diskette.

If you are installing from diskettes, when OS/2 prompts you to put in disk 1 a second time (further along in the installation), insert the original disk 1 instead of the modified copy you used initially. (Note: if you have a Micro-Channel adapter you need to modify your OS/2 Installation diskette. See page 292 of the *OS/2 Warp User's Guide* for details on what to do.) ♦

Gordon Scott works for the Electronic Publishing group at IBM which offers services in developing online information for CD-ROM or Internet distribution. Gordon's e-mail address is GBS@VNET.IBM.COM and the Electronic Publishing group can be reached at 1-(800)926-0364.

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OS/2 Presentation Manager GPI, 2nd edition

by Graham C. E. Winn, John Wiley & Sons, Inc., 344 pages, \$39.95

REVIEWED BY JAMES M. HANSEN

This book is of interest to OS/2 programmers and developers. Originally published in 1991, it has been updated with more than 60 programming examples (on disk) and extensive coverage of the Graphics Programming Interface (GPI) and new OS/2 Warp enhancements. Readers will find many of the tricks and techniques needed to make professional quality graphical screen displays for programs running under OS/2.

In general, I like this book because it first presents simple, easily understood concepts and then builds on them in a natural, progressive manner. Chapter one establishes what the graphics subsystem looks like, then describes the basic techniques for accessing the printer and opening display windows, followed by more extensive detail.

Not content with simply showing what it takes to draw something on the screen, Winn discusses system responsiveness and how to maintain enduser response in the OS/2 multithreaded environment.

This is a comprehensive book. Just about everything you can do to an image on the screen or printed page is covered. For example, a concept presented early on is that of the "device context." This is the management technique and philosophy that makes it possible for multiple applications to share a screen, printer or other device without limitation and without inter-program interference.

Drawing primitives and attributes are covered in chapter three, where the GPI is used to scale, rotate, shade and carve virtually anything nine ways to Sunday.

The font discussion is lengthy and complete and the programming examples provides an interesting dialog for font selection and management.

One of the seemingly mundane, yet more interesting subjects covered is that of clipping and display regions. The GPI provides no less than four programming objects for defining and maintaining window boundaries.

Metafiles are also covered, including a programming example of how to create and process them. Metafiles are essentially files that record virtually anything in any format. When accessed, the metafile output can be changed to a different format. The OS/2 clipboard is a good example of this operation, showing how an image can be copied from one application, then pasted to another image or document, all with the user blithely unaware of the complexity of the operation.

The final chapter covers printing and plotting. Back in the old days of OS/2 1.x, the Print Manager was a separate application program. Today, the functions it provides are scattered among the printer objects on the desktop. This is one of the longest chapters in the book and rightfully so. Given the complexity of sharing a printer, it is surprising that so much could be explained so clearly in so little space.

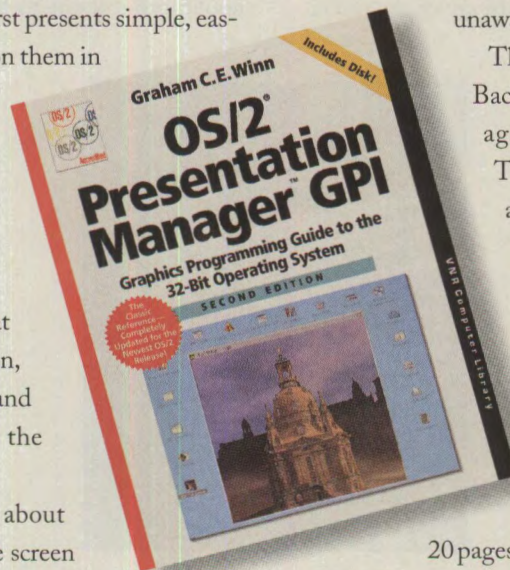
Most of the example programs in this book are not trivial, nor are they for the faint of heart. Some are 15 to

20 pages long, and all show good programming structure and general technique. The examples themselves provide a good study for those with only intermediate programming ability. They were tested to work with IBM's C SET++ compiler and as the label says, "results may vary" with other compilers.

Winn is well qualified to discuss the subject since he was the lead GPI developer for OS/2's V1.1 GPI and has been working with various aspects of the OS/2 GPI since 1986.

This is not a book for those with only a casual interest in the subject. To get the most benefit, the reader should be familiar with Presentation Manager programming techniques and able to write a simple Presentation Manager program that creates a standard message window and queue. ♦

James M. Hansen, president of New Boston MFG Technologies in New Boston, New Hampshire, is a writer on technology and computing topics.





Remember When

BY JERRY POURNELLE

I'm old enough to remember when it was IBM and the Seven Dwarfs. Everyone cried for the government to break up Big Blue because no one could compete. I also remember back in 1989 when Microsoft moved to the new campus in Redmond. Gates and his people invited software developers, software retailers, every major computer journalist and perhaps more importantly, every Wall Street high tech stock analyst, to a really big show.

The campus was so new that we met in an old black temporary building, sitting at banquet tables and on ordinary chairs rather than the slick furniture they now have in their conference center.

The whole room was decorated with enormous banners proclaiming OS/2 as the wave of the future. Bill Gates himself opened the proceedings with a slide presentation. The slides obviously had been made with Power Point on a Macintosh, as there was no Windows version in those days; but they sang the praises of OS/2. They showed visual models of how DOS and Windows and Presentation Manager fit onto OS/2, and how all of that fit over SQL, so that you would be seamlessly connected from your desktop PC to the world of mainframe data bases. This was the future and there wasn't any doubt about it.

Gates finished and there was another presentation along the same lines; then the IBM executive spoke. He talked for 15 minutes, looked at his watch, and with perfunctory apologies announced he wouldn't have time for questions because he had to catch an airplane back to Boca. He left behind stunned silence as the assembled journalists and analysts wondered just what the hell was going on. IBM couldn't be that arrogant. Could they?

The next day Gates addressed the group again. This time his message was subtly different: if you wanted to get applications running on OS/2, the best way would be to get them on Windows first. Not too long after that we heard the first rumors, then an announcement of a rift between IBM and Microsoft, followed

by another announcement that Windows and OS/2 would be going their separate ways.

Then a couple of years ago Gates told another assembled group of journalists and financial analysts another story: "A few years ago I went to all the software developers and asked them to write applications for Microsoft Windows. They wouldn't do it. So I went to the Microsoft Applications Group, and they didn't have that option."

At Spring Comdex 1995 the show was dominated by Win95 applications about to be released and not just from Microsoft.

Hundreds of developers are doing Win95 apps.

Now here comes Edwin Black, who wants to break up Microsoft so that IBM can compete. I have a great deal of respect for our editor and publisher. His proposed *De-Installation of Windows* is complicated, but it's well thought out, and as he says, it's both legally and commercially possible. More difficult and complex settlements have been implemented.

It's also the wrong thing to do.

It's wrong for two reasons. First, Microsoft's dominance isn't likely to last as long as IBM's did. Big companies come

and go, and no matter how dominant Microsoft becomes, I doubt that it will ever be as hidebound and arrogant as IBM was. Do we really want to break up Microsoft so that Big Blue can go back to charging \$600 for a CD-ROM of device driver tools?

Second, and more importantly: whatever the effect on Microsoft and IBM and the Dwarfs, the one inevitable result would be a great increase in the power of government. Supervising something as complicated as the de-installation of Windows would require a staff of bureaucrats. Once that was set up, they would want to keep their jobs and earn promotions; and the only way to do that would be to find even more ways to interfere with the computer industry.

We already have a plague of bureaucrats feeding on this industry. We need more like we need the Red Death. ♦



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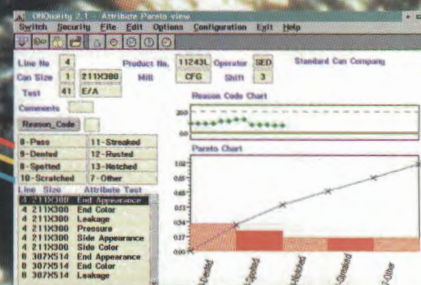
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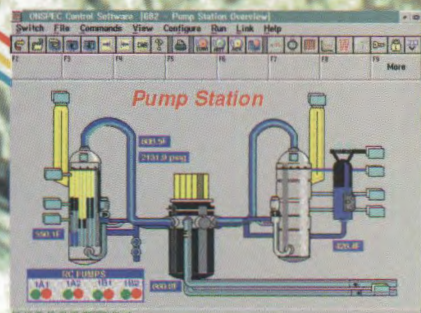
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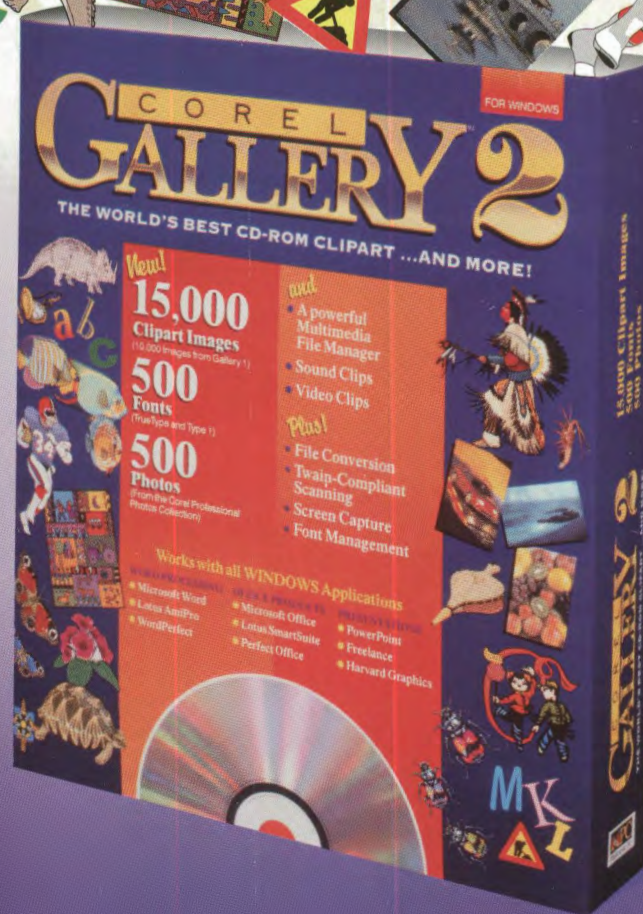
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